

University of Alberta

Cognitive Assessments for Older Adults: A Canadian Survey

by

Alison M. Douglas



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of the requirements for the degree of Master of Science**

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Abstract

Occupational therapists frequently assess cognition with older adults, yet little is known about which assessments they use, and for what purposes. This study examined Canadian occupational therapists' use of cognitive assessments with older adults. A random sample of 1042 occupational therapists was invited to complete a questionnaire by email, post or web (response rate 24.5%, $n=247$). Respondents identified 75 standardized and non-standardized measures, of which 21 (28%) were not previously found in the occupational therapy literature. The assessments were grouped according to theoretical approach: bottom-up (assessment of cognitive components) or top-down (assessment of function). Theoretical approaches were used similarly across regions, despite differences for particular assessments. Most bottom-up assessments were standardized, used to identify deficits and were easy to administer. Most top-down assessments were non-standardized, identified deficits and predicted, and fit with therapy needs. The development of standardized assessments which assess cognition through daily living activities would support evidence-based occupational therapy.

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Chapter 1:

Introduction and Review of the Literature

Occupational Therapy and Cognitive Assessment with Older Adults

Occupational therapists commonly assess cognitive capacities such as memory, attention, and problem solving in older adults (Grieve, 2000). These assessments are often used to determine care plans. A wide array of assessments is described in the occupational therapy literature; nonetheless, a literature review reveals that some popular assessments in current use are not documented. For those that are documented, clinicians' views of the clinical utility of these assessment tools are not known. A survey of occupational therapy clinicians is needed to describe the most frequently used cognitive assessment tools and methods, and the reasons for their choice. The data would provide clinically valuable information to occupational therapists regarding which cognitive assessments and approaches are most commonly used and why. The data would also assist researchers in identifying which tools therapists choose based on their ease of use in the clinical setting versus reliability and validity, and would describe assessments previously undocumented in the occupational therapy literature.

A review of the occupational therapy journals (CINHAL database) and textbooks (Asher, 1996; Duchek & Abreu, 1997; Grieve, 2000; Law, Baum, & Dunn, 2001; Vining-Radomski, 2002; Willard, Spackman, Hopkins, & Smith, 1993) identified at least 26 standardized cognitive assessments and several non-standardized methods that are recommended for use by occupational therapists (Douglas, 2005). Therapists must select amongst a wide array of measures. There is growing need for standard assessment tools

to be used across regions and nationally for comparisons of intervention outcomes, and because of the move toward electronic medical records.

Purposes for Cognitive Assessment:

Occupational therapists assess cognition with respect to "occupational performance" (CAOT, 1997), which is the ability to function in the tasks, activities and roles that define the person as an individual (Law et al., 2001). The client's cognition is assessed as a component that affects occupational performance in the areas of self-care, productivity and leisure (CAOT, 1997). Thus, the assessment of cognition is part of the process of assessing the client's roles and performance of occupations.

Cognition is defined as the processes in the mind that produce thought, and goal-directed action (Vining Radomski, 2002). The occupational therapy literature (Goslisz & Toglia, 1998; Law et al., 2001; Radomski, 2002; Wheatley, 2001) provides varied descriptions of the purposes for assessment, which are synthesized into the three categories described by Kirshner and Guyatt (1985). Assessment can be used to a) identify deficits for planning treatment, b) measure change or c) predict prognosis (Kirshner & Guyatt, 1985), independent living status and the need for services (Opacich, 1991), or the impact of deficits on functional performance (Goslisz & Toglia, 1998).

The brief screening measures reviewed in the medical literature are designed to identify deficits or measure change. However, occupational therapists also require additional information to measure occupational performance, predict safety to live alone, or determine level of assistance required. The relative frequency of assessment use by occupational therapists for prediction, versus identification and measurement of change, is unknown.

Prevalence of Occupational Therapy Cognitive Assessment with Older Adults:

Reviews of standardized outcome measures in dementia have demonstrated that cognition is one of the outcomes most frequently measured in health care (Miller & Weissart, 2003). Occupational therapy sources stress the common requirement to assess cognition in older adults (Grieve, 2000; Strub & Black, 1993); however the frequency of cognitive assessment by clinicians has not been documented. The majority (60%) of occupational therapists work with seniors aged 65 and over (CAOT, 2004a). An estimated 7.6% of Canadians over the age of 65 have Alzheimer's disease or a related dementia (Alzheimer Society of Canada, 2004). The prevalence of cognitive impairment amongst occupational therapy referrals is likely higher, due to the selective referral of only those with deficits.

Approaches to Cognitive Assessment:

The occupational therapy literature describes four approaches that therapists use to assess cognition. These are: 1) the "bottom-up" approach, 2) the "top-down" approach, 3) the "integrative functional" approach and 4) the "combined" approach. Using the bottom-up approach (Duchek & Abreu, 1997; Grieve, 2000; Vining Radomski 2002), a therapist focuses on cognitive capacities, such as memory or attention, using performance to infer potential function in daily life. The advantage of this approach is that it reduces therapist bias, by depending less on clinical observations (Vining-Radomski, 2002) and provides quantifiable data which is easier to communicate (Grieve, 2000). The disadvantage is that it relies on the assumption that one cognitive construct

can be assessed separately from another (Vining-Radomski, 2002), and is not affected by factors such as unfamiliar assessment environment, education, language and culture.

The second, top-down approach (Duchek, & Abreu, 1997; Grieve, 2000; Vining Radomski, 2002) relies on the therapist's observation of performance on everyday tasks to ascertain cognitive abilities. This approach has the advantages of allowing assessment in a more natural context, reflecting daily life more accurately (Grieve, 2000), and minimizing the effects of communication deficits (Vining-Radomski, 2002). A disadvantage is that it is difficult to standardize functional assessments: they are easily influenced by the therapist's definition of "normal performance", and ability to make clinical observations (Vining-Radomski, 2002). As well, the cognitive performance components may be more difficult to identify (Grieve, 2000). It has been argued that assessment always follows a top down approach in that a therapist determines what roles and activities a person wants and needs to perform and bases the assessment on those (Trombly, 2002).

A therapist using the integrative functional approach (or Toglia/Abreu approach) combines both top-down and bottom-up approaches within a session analyzing cognitive strategies rather than performance (Duchek, & Abreu, 1997). The final "combined" approach provides information not obtainable from the previous approaches (Vining Radomski, 2002). These data include client self-report and caregiver report, and is obtained from interviews or standardized questionnaires.

The aims of assessment have also been classified by the World Health Organization International Classification of Functioning Disability and Health (ICF), and they are conceptually very similar to the occupational therapy approaches. The goal of the ICF classification system is to form a standardized language and framework to

understand and measure health outcomes. According to the ICF, assessments can be categorized into 1) body function 2) activity and 3) participation.

Choice of Assessments

Choice of cognitive assessments depends not only on psychometric properties of reliability, validity, and responsiveness. Other factors include the clinical utility and theoretical construction (Law et al., 2001). Clinical utility refers to the usefulness of the results, cost, the time required for training, administration and scoring, and the purpose of the assessment. Theoretical construction of the tool refers to the fit between the assessment tool and the theoretical approach to cognitive assessment. This list of factors was shown to be comprehensive in a research study (Law et al., 1999). A computer data-base contained information pertaining to each factor and it was demonstrated to be effective in increasing occupational therapists' comfort with standardized assessment selection in a pediatric facility.

Methods for Cognitive Assessment

The methods of assessment have been categorized and named in various ways in the occupational therapy literature. Generally, standardized assessments have been categorized separately from other methods (Duchek & Abreu, 1997; Pedretti & Early, 2001; Polgar, 2003; Vining Radomski, 2002). Alternate criteria have been applied to categorize assessments into "formal" and "informal" assessments (Vining Radomski, 2002) or "quantitative", "individualized", and "qualitative" assessments (Wilkins, Law & Letts, 2001).

Standardized assessments are those which use a documented protocol, are scored, and are administered under uniform conditions (Law, 2002; Mandich, Miller & Law, 2002; Vining Radmoski, 2002; Wheatley, 2001; Wilkins et al., 2001). They have the advantage of providing objective, quantifiable data, and a common terminology to communicate with other professionals on the health-care team (Wheatley, 2001). They also form a foundation for evidence-based practice in that they that can be used to compare clients to a normative group, and scores cumulated across clients can be used to evaluate intervention (Mandich et al., 2002).

Other methods of assessment include customized assessments, and informal or non-standardized assessments. Customized assessments, such as Goal Attainment Scaling, provide quantitative information, and have protocols but they are adapted to the client's goals, thereby incorporating the client's specific goals and environment into the evaluation (Donnelly & Carswell, 2002; Mandich et al., 2002; Wilkins et al., 2001). Informal or non-standardized assessments are those without a standard protocol, such as interviews (Pedretti & Early, 2001). However, this category may also include assessments such as observation in the kitchen during which a therapist observes a client's ability to organize and plan (Vining Radomski, 2002).

Non-standardized assessments have the disadvantage of being highly subjective, and greatly influenced by the therapists' opinion of what constitutes impaired performance, and by the therapists' ability to determine the relationship between specific behaviors and cognitive processes (Vining Radomski, 2002). However, non-standardized assessments are used for several reasons. They provide important functional information even with clients who cannot tolerate a full standardized test, or with whom communication is difficult, and they may be used to predict independence (Wheatley,

2001; Vining Radomski, 2002). They also can be individualized to the particular goals and environment of the client, which may change over the course of therapy (Mandich et al., 2002). However, these features may also be found in individualized assessments which are administered in a systematic way and provide a quantitative score (Donnelly & Carswell, 2002).

The frequency of use of standardized compared to non-standardized assessments with older adults is not known. Surveys of occupational therapists working with other populations have examined the use of standardized and non-standardized assessments. In pediatrics, practice surveys have reported the use of both standardized and non-standardized assessments (Wallen & Walker, 1995), and therapists working with autistic children reported using non-standardized assessments more frequently (Watling, Deitz, Kanny, McLaughlin, 1999). A recent decline in the reporting of many standardized assessments in pediatrics was hypothesized to be linked to an increase in both a) the use of standardized functional assessments, and b) "observation of functional skills", compared to previous surveys (Burtner, McMain & Crowe, 2002). A preference for non-standardized over standardized tests was found amongst occupational therapists who worked with rheumatoid arthritis (Blenkiron, 2005). The author stated that clinically useful standardized assessments were available, and concluded that the preference for non-standardized assessments was due to lack of knowledge and training time on the part of the therapists. The qualitative data from the respondents indicated that the therapists did not have standardized assessments that assessed function in daily living and that fit with a model of practice, or that could be individualized to the client or environment.

Standardized Assessments of Cognition

Limited critical reviews are available pertaining to cognitive assessments for older adults. Critical reviews examine reliability, validity and responsiveness of instruments (Guyatt, Walter & Norman, 1987). Several texts offer primarily descriptive information about cognitive assessments in occupational therapy without providing a critique of the rigor of their psychometric properties, such as reliability and validity (see for example Gelinas & Auer, 1996; Vining Radomski, 2002; Willard et al., 1993). Furthermore, each text describes a different list of assessments, and the criteria for inclusion of instruments are unclear. Texts dedicated to occupational therapy measurement tools either do not include many of the tests in the occupational therapy literature (Asher, 1996), or they focus on functional measures rather than direct measures of performance components such as cognition (Law et al., 2001; Letts, Baum & Perlmutter, 2003).

A critical review by Kirkpatrick and Jamieson (1993) examined standardized cognitive measures for use in a cardiac unit. They reviewed 12 neuropsychological tests and five tests from the rehabilitation literature. Criteria for inclusion were not specified but they found that the neuropsychological and brief screening tools had superior validity and reliability compared to the rehabilitation tools. However the authors stated that occupational therapists were not qualified to administer the neuropsychological tools, and they gave guarded endorsement for several rehabilitation tools.

The medical literature reviews of cognitive tests for dementia focus on brief screening instruments because they are favored by physicians (Lorentz, Scanlan, & Borson, 2002). Recommendations are accompanied by the caveat that each screening tool has its weaknesses, yet standardization has advanced significantly in the last two decades (Morgan, 1997; Palmer, 1999; Wells et al. 2003).

Summary of the Literature Review

Occupational therapists working with older adults are required to assess cognition routinely. Cognition is assessed as a performance component which contributes to one's ability to function in daily living. A wide range of cognitive assessment instruments is noted in the literature and in an unpublished survey. Many assessments in current use by occupational therapists are not documented in the occupational therapy literature, nor is there a critical review of occupational therapy cognitive assessments for older adults. Theoretical approaches and methods for assessing cognition have been described, but their use in practice is not known. The reasons for choice of assessments and the relative use of standardized and non-standardized methods have been explored using practice surveys in other areas of occupational therapy, but have not been examined in the area of cognitive assessment with older adults.

Rationale for a Practice Survey:

A survey is required when data is needed to form the foundation for future research and describe current practice norms (Portney & Watkins, 2000). Currently, the occupational therapy literature provides a theoretical foundation for cognitive assessment methods, but does not address current practice for cognitive assessment with seniors.

The need for a survey was seen by clinicians who undertook a survey of Canadian occupational therapists which remains unpublished (Aronson, Barr, Kyle, & O'Keefe, 2002). Using an open-ended questionnaire, 68 hospital-based occupational therapists reported the use of 37 different standardized assessments some of which were not found in a review of the literature (Douglas, 2005). Data on the demographics of the sample, the frequency of assessment use and the reasons for choice were not obtained, and they reported the likelihood of inconsistencies in data collection, due to non-standardized methodology (J. O' Keefe, personal communication Oct 24, 2003). Therefore another survey which collects the above data is warranted. A larger sample size would permit greater generalizability and better represent occupational therapists across Canada. Closed-ended survey items could be used to focus responses on issues related to clinical utility of cognitive assessments.

Purpose and Objectives of the Study

The purpose of this study was to survey Canadian occupational therapists who work with older adults to examine what cognitive assessments they currently use and the reasons for their choice of these assessments.

The specific objectives of the study were: 1) to describe the general theoretical approaches used by Canadian occupational therapists who work with older adults, 2) to report which cognitive assessments the occupational therapists were choosing and how often they used them, 3) to report the purposes for which the assessments were used 4) to examine the perceived importance of reasons why occupational therapists chose the assessments they reported, 5) to determine if the occupational therapists' use of overall theoretical approaches varied with region of residence and primary work setting.

Expectations

It was expected that occupational therapists would report using more than one approach to cognitive assessment, based on theoretical description of OT practice in the literature. However, based on education of occupational therapists in the use of interviews and bottom-up standardized assessments, and clinical experience in the use of such assessments, it was expected that the bottom-up and combined approaches would be the most popular.

Based on the unpublished survey by Aronson, Barr, Kyle, and O'Keefe (2002), it was expected that occupational therapists would report the use of numerous measures, some not documented in the occupational therapy literature, and each chosen for differing reasons and purposes. The frequency of use of standardized versus non-standardized and top-down versus bottom-up types of assessments could not be inferred from the literature review.

It was expected that the reasons for assessment choice would emphasize ease of administration and availability, and may include examination of reliability and validity. The distribution for use of each theoretical approach was expected to vary according to

geographic region, and practice setting, based on discussion with clinicians and personal clinical experience. The direction of variation was not known.

Significance of the Study

The value of a survey is in its ability to describe the current practice of occupational therapists in an area which has thus far been only described in terms of recommendations for practice (see Asher, 1996; Duchek & Abreu, 1997; Grieve, 2000; Law et al., 2001; Vining-Radomski, 2002; Willard et al., 1993).

The findings of this study would have both clinical and scholarly value. Cognitive assessment results are often used to determine care plans, identify impairment, and recommend services. These decisions may have broader implications for hospital bed utilization, burden on community services, and consent issues regarding discharge, especially in light of an increasing elderly population. It is therefore important to know factors related to therapists' choice of cognitive assessments. Researchers can use the data to examine the clinical utility of outcome measures, to understand desirable characteristics of assessments used by occupational therapists, and to delineate the scope of a critical review of currently used cognitive assessments.

Operational Definitions

Bottom-up approach – Defined as an assessment approach comprising of examination of cognitive *components* (e.g. tests of memory, attention, executive function) either with a standardized tool or non-standardized method.

Top-down approach – Defined as an assessment approach comprising of observation of functional tasks (e.g., dressing or cooking) either with a standardized tool or non-standardized method.

Toglia/Abreu approach – Defined as an assessment approach which uses both top-down and bottom-up approaches within a session and analyzes cognitive strategies rather than performance.

Combined approach – Defined as an assessment approach comprising of an interview or questionnaire with client/caregiver in addition to either bottom-up or top down assessments above.

Standardized assessment – Defined as an assessment tool with a documented protocol which allows administration of a test under uniform conditions (Law, 2002).

Non- standardized assessment – Defined as an assessment method which does not have a documented protocol.

Region of residence- Responses for province or territory of residence were grouped into five categories:

- 1) British Columbia: BC
- 2) Prairie Provinces: Alberta, Saskatchewan and Manitoba
- 3) Ontario: ON
- 4) Quebec: QC
- 5) Maritimes and Territories: New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Yukon and Northwest Territories.

Chapter 2:

Methods

Justification of Study Design

A descriptive survey design is the method of choice when data are required to describe a population and their opinions (Portney & Watkins, 2000). The most common survey methods in current use include postal, email, telephone interview, and web-based surveys (Klein, 2002; Oppenheim, 1992). A combined or "multimodal" (Schaefer & Dillman, 1998) design of postal and internet survey was chosen for this study because it is associated with increased speed and reduced costs and respondent burden compared to telephone interviews and postal-only surveys (Schaefer & Dillman, 1998). The combined design addresses sampling bias by ensuring that those without access to the internet have equal ability to respond.

The combined approach helps to ensure that potential respondents can access the survey in their preferred method (Schaefer & Dillman, 1998). There is debate over whether response rates are greater for postal, email or web-based surveys (Klein, 2002). Email and postal notices have been shown to be equally effective (Schaefer & Dillman, 1998), but email notices have the advantage of being less costly. Because the response rates were not expected to be significantly lower with postal requests, in this study, those who had access to the internet were sent email requests. The email requests directed the respondents to a web-based survey. This was chosen over an email survey because web-based surveys have numerous access advantages over email surveys. These include reduced risk of file corruption, and reduced deletion due to "spam" filtering and fear of viruses (Dillman & Bowker, 2001). Strategies noted in the literature were used in the

development of both email notices (Schaefer & Dillman, 1998) and designing web surveys (Dillman, Tortora & Bowker, 1998; Dillman & Bowker, 2001; Klein, 2002).

Sample

Sample Size

The expected response rate was based on response rates obtained from the following surveys of Canadian occupational therapists: 35% (Pui, Liu & Warren, 2005), 38% (Farrar, 2001), 42% (Freeman, MacKinnon & Miller, 2004), 68% (Law & McColl, 1989), and 86% (Boyd, Pepin & Szabo-Hartin, 1999). The sample size was based on a conservatively estimated response rate of 35%, therefore a sample size of 1040 occupational therapists was calculated (see Appendix A).

Sample Criteria

The sample was selected from the national association (CAOT) internet listing of therapists called "OT Networker" (CAOT, 2004b). This listing provided contact information that occupational therapists consented for release for networking purposes.

At the time of the study, approximately 63% of Canadian occupational therapists were members of CAOT (CAOT, 2001), and 80.4% of CAOT members (4567 persons) were listed on the "OT Networker" database (CAOT, 2004b). To minimize sampling bias, additional respondents were sought by placing a recruitment notice in provincial occupational therapy newsletters (Appendix B). The following organizations agreed to include the notice in their newsletters or email distributions: Nova Scotia Society of Occupational Therapists, New Brunswick Association of Occupational Therapists, L'ordre des ergotherapeutes de Quebec, Northern Association of Occupational

Therapists, Association of Yukon Occupational Therapists, Alberta Association of Registered Occupational Therapists, and British Columbia Society of Occupational Therapists. Notices were also mailed to University of Alberta clinical contacts in Alberta and Saskatchewan. Those provincial bodies that did not run the recruitment notice either did not respond or declined stating they required a paid advertisement and insufficient time was given to submit an advertisement.

Inclusion Criteria

Individuals were eligible for the study if they were occupational therapists who were members of CAOT, had consented for their contact information to be released, and worked in Canada. The individuals must have also been active in clinical practice in that they must have identified on the "OT Networker" database that they had "direct and indirect client contact" and worked with older adults. Of the "OT Networker" therapists, 55% (2513 persons) identified a province and reported working both in "direct and indirect client contact" and with older adults (CAOT 2004b). The sample was stratified by province of residence according to the national distribution of occupational therapists (CAOT, 2001).

Exclusion Criteria

Five members who assisted with development of the questionnaire were excluded. As well, for the web-based survey, it was necessary to ensure that there were not multiple entries from the same source. Therefore, the IP addresses of the respondents were checked, and if the responses to the questions were the same, one of the duplicates was excluded. Two duplicates were excluded, and it was evident that the respondents had

submitted an incomplete survey, then returned to it later and submitted the complete survey. Entries from the same IP address that were different would not have been excluded because several therapists may have shared the same computer in the workplace. However, different entries from the same IP address were not submitted. Therefore, the results did not include any responses that were submitted from the same IP address.

Procedures

Development of the Survey Questionnaire

It was necessary to develop a questionnaire specifically for this study, because of a lack of existing instruments (Streiner & Norman, 1995). The questionnaire (see Appendix C and D) contained three sections: 1) *general methods* of cognitive assessment 2) *choice of assessment instruments or methods*: names, frequency, purpose and reasons for choice, 3) *demographics*: primary practice setting, geographic region, age categories, and gender.

The aim of part 1 of the survey was to gather information on respondents' frequency of use of the general theoretical approaches found in the literature review. The rationale for the placement of this question at the beginning was to begin the questionnaire on a more general question before becoming specific (Oppenheim, 1992). This would also serve as a cue to recall many methods of assessment, rather than only standardized measures and to reduce desirability bias.

Part 2 of the questionnaire examined the particular assessments the respondents employed. Recall and desirability bias were minimized by requesting respondents to

recall assessments on their own rather than choosing them from a list (Oppenheim, 1992; Streiner & Norman, 1995). The question cued the therapists to recall both standardized and non-standardized assessments. Respondents were requested to indicate the frequency of use, purpose and reasons for choice for each assessment. The 5-point scale construction and wording were written according to guidelines by Woodward and Chambers (1986). It should be noted that the therapists were not asked to report the tools' reliability or validity, but to rate the importance of this aspect in their choice of the tool.

Part 3 of the questionnaire served the purpose of gathering demographic information, and the format of the request (e.g. email or post). The wording and categories were derived from the CAOT member survey (CAOT, 2004a), in order to compare the respondents to data for the membership of CAOT. These questions may be perceived as personal and therefore they were placed at the end to prevent the discouragement of potential respondents (Streiner & Norman, 1995). Information about the source of the request was gathered in order to calculate response rate.

Measures were undertaken to minimize measurement bias of the questionnaire, including desirability bias, and instrument bias. Desirability bias was addressed by ensuring anonymity of postal surveys (Oppenheim, 1992; Streiner & Norman, 1995) and confidentiality of web surveys (Schaefer & Dillman, 1998). This is further addressed under "Ethical Considerations".

Instrument bias was addressed in two ways. First, the survey instrument was piloted. In September, 2004, five practicing occupational therapists who administer cognitive assessments with older adults completed the questionnaire and answered emailed questions regarding the tool. They provided feedback regarding the clarity of the

cover letter and survey questions, completion time and face validity of the instrument (Portney & Watkins, 2000; Streiner & Norman, 1995). Several questions were modified for clarity. The completion time was reported to be between 10 and 20 minutes. Second, non-response bias (Dillman & Bowker, 2001) was minimized by providing respondents with a variety of ways to return the questionnaire including: downloading to print, mail or fax, or submitting from the web.

The questionnaire was printed as a paper version and was also made into a web-based questionnaire using a survey software service (<http://www.surveymonkey.com/>). A web page with the introductory letter directed the respondents to the web-based survey. Because the site did not have a counter, it was not known how many individuals opened the website, and only the number who partially or fully completed the survey was known.

Coded Questionnaire

A sample survey was coded to ensure accuracy and consistency of data entry. For example, the demographic data for gender was coded 1 for males, and 2 for females.

Sampling Method

A random sample of 1042 names, stratified by province, was selected from the population of 2513 therapists on "OT Networker" who reported working directly or indirectly with older adults.

The sample was stratified by province using the following method. A table was generated including each province and territory in Canada and the required number of requests for each was calculated based on the percentage of practicing occupational therapists in each (CAOT, 2001)(see Table1). There were insufficient numbers of

therapists on the "OT Networker" database from Quebec; therefore, all therapists from Quebec on the data base were sent requests and the other needed requests were distributed proportionally amongst the remaining provinces/territories. At the time of the study, the territory of Nunavut had been created; however the database addresses did not reflect this change. Therefore, the number of therapists in Nunavut was unknown, and no requests were sent to therapists with a listed address of Nunavut. It was assumed that the therapists from Nunavut were listed as residents of the Northwest Territories. The calculations are shown in Table 1.

Table 1
Calculation of Sample Stratification

Province	% practicing in province	# individuals required from sample	#available in OT Networker	Revised # individuals required from sample
NL	1.4	15	60	19
PEI	.39	4	18	5
NS	2.6	27	143	34
NB	2.2	23	109	29
QC	27.6	287	88	88
ON	35.7	371	1229	469
MN	4.4	46	113	58
SA	2.3	24	84	30
AB	10.3	107	316	135
BC	13.0	135	343	171
YT	.06	1	4	1
NT	.07	1	6	1
Total	100	1040	2513	1040

The required number of persons for each province was randomly selected using a random number generator (Research Randomizer, 2004). For example, for Newfoundland, 15 random numbers between 1 and 60 were generated. The members corresponding to those numbers on the provincial list were selected.

The randomly selected members with email addresses were sent email requests, and those with only postal addresses were sent postal requests. The "OT Networker" database comprised of 18.7% members who had postal addresses only. Email addresses were copied and placed in an electronic mailing list. Mailing labels were ordered through CAOT in the following way: the number of postal addresses required for each province was tabulated, and the labels were generated by random sampling of "OT Networker" members who met the inclusion criteria. Two more postal address were obtained for Quebec than were expected from the calculations. These therapists were sent postal requests, and the total sample size was therefore 1042 instead of 1040.

The email requests were sent in groups of 10 to prevent detection by "spam" filters (D. Polvere, personal communication, Sept. 15, 2004). They were brief and contained a link to a web page. The web page was in both English and French versions and contained consent information and further links to either a Microsoft Word version of the survey for downloading or to the web-based survey.

The postal packages included a two-page cover letter, the five-page survey and a business reply envelope with the address of the Department of Occupational Therapy, Faculty of Rehabilitation Medicine, University of Alberta. The individuals in Quebec and New Brunswick were sent both French and English translations of the email and postal requests, and contacts in all other provinces were sent English versions only. Cover letters are in Appendices E and F.

Schedule of Initial and Follow-Up Requests

The surveys were mailed or emailed to the 1042 randomly selected occupational therapists on October 1, 2004. One postal survey and 34 emails were returned undeliverable. These members were not replaced. On October 25, 3 weeks later, follow up reminders were either emailed or posted (see Appendices G& H). At the cut-off date of November 15, a thank-you note was emailed to all therapists with email addresses, which included a link to the survey. This last email served as a final reminder.

Availability of Documents

Respondents were advised in the follow-up letter that if they had misplaced the questionnaire, they could obtain another from the Internet at <http://www.rehabmed.ualberta.ca/OT/cognitivesurvey> or they could request a copy by email or phone. No respondents requested another questionnaire, but because the website did not count hits, it was not known if some accessed them electronically.

Two incentives were available. Respondents who completed the web survey were able to print a certificate in either French or English (Appendix I) that indicated they participated in a research survey, and which could be displayed in their professional development portfolios. If respondents were unable to access the certificate, they were requested to email, fax or phone the primary researcher to obtain a copy. Twelve respondents contacted the researcher and requested the certificate in alternate forms (fax, email or post).

The second incentive was to provide the initial results of the survey to respondents. The initial results were posted on the web site, and respondents were informed of the web address at the time of the request. It was expected that these incentives did not significantly bias the sample, because they were not large incentives (Oppenheim, 1992) and the nature of the incentives promoted professional participation.

Data Inclusion and Data Entry

The response deadline was indicated to be November 15, 2004 however, responses were accepted beyond the deadline. The final response was received on December 15th, 2004. The data from the posted, faxed and emailed questionnaires were entered into an SPSS database according to the coded questionnaire. The data from the web-based survey were downloaded to a spreadsheet file and responses were electronically cut and pasted into an SPSS database.

Expected Response Rate of the Survey

The expected response rate of 35% was based on previous surveys of Canadian occupational therapists; however, survey response rates generally are much lower. For postal surveys response rates have been noted to be between 30 and 60% (Portney & Watkins, 2000) but as low as 5- 10% for some questionnaires (Edwards et al, 2003). For electronic surveys, response rates have been reported to vary between 19 and 43% (Yun & Trumbo, 2000). There is no standard for an acceptable survey response rate (Cummings et al., 2001); however lower response rates increase the likelihood of response bias (Edwards et al. 2003, Portney & Watkins, 2000).

Statistical Analysis

The results were nominal data that were analyzed using non-parametric statistical methods. Descriptive statistics regarding frequencies and percentages were obtained using SPSS software (SPSS Inc., 2004). Open ended questions with the names of assessments were grouped according to whether the assessment was standardized or non-standardized. The non-standardized assessments were grouped into categories according to similarities in the type of task performed, such as interviews or kitchen tasks. Subsequently, the assessments were categorized according to theoretical approach (bottom-up or top-down). If the assessment evaluated specific cognitive capacities such as memory or executive function, it was placed in the "bottom-up" group, and if it assessed leisure tasks or daily living activities, it was placed in the "top-down" group. A category for combined approach was not created because of the low numbers of responses in this category. Open ended responses to part 2 (reasons for choice of assessment), question 3 ("other") were coded.

Inferential statistics were used to address the research questions and to determine the level of representation of the sample. Chi square procedures were used to determine how representative the sample was of a) all practicing Canadian occupational therapists (n= 9,485), and b) the membership of the Canadian Association of Occupational Therapists (n= 5,090) (CAOT, 2001). The age, gender and primary work setting of the respondents was compared to members of CAOT because the contacted individuals were CAOT members, current statistics were available regarding these demographic variables, and demographic data were not available for the "OT Networker" database (n=2513). The region of residence of the respondents was compared to statistics from Canadian colleges on all practicing therapists which was published by the national association.

(CAOT, 2004a). This comparison was made because the sample was stratified based on the distribution of all practicing occupational therapists. The demographics of the non-respondents were not known.

Chi square procedures were also used to examine the variability amongst *geographic regions* and *primary work settings* for use of each theoretical approach to cognitive assessment. Post-hoc Yates Correlation Coefficient procedures were used to determine which particular geographic regions or work settings showed greater use of each theoretical approach.

Ethical Considerations

University of Alberta Health Research Ethics Board approval was obtained for this study in August, 2004. The study adhered to ethical principles of confidentiality, informed consent, voluntary participation, and explanation of risks and benefits (see English and French cover letters Appendices E and F).

Chapter 3:

Results

Description of Respondents

Response Rate and Data Integrity

Response Rate

Of the 1042 surveys sent by email and post, 34 were returned undeliverable by email, and 1 by post. From the 1008 deliverable surveys, the total number of responses was 251, an overall 24.9% response rate. Before the reminder date, 150 (60.7%) responses had been submitted, 247 (98.4%) had been submitted by the deadline, and 3 (1.2%) were accepted after the deadline. Of the 251 returned questionnaires, 4 were from respondents who stated that they no longer worked with older adults. Therefore, 247 (98.4%) questionnaires were deemed valid, indicating a valid response rate of 24.5%.

Among the 247 valid questionnaires, 167 (67.6%) were completed on the web, 43 (17.4%) were completed electronically and returned via email, and 37 (15.0%) were paper versions returned to the researcher by post. The respondents were requested to indicate how they received the request to participate in the study. There were 140 responses from direct email requests (17.3% email response rate), and 45 responses from direct postal requests (22.3% postal response rate). The number of respondents indicating they had received requests from indirect sources such as advertising, forwarded emails, and word of mouth were 36 (14.6% of respondents). The response rates by geographic region are shown in Table 2.

Table 2
Response Rates by Region

Region	Number Requests Sent	Number Respondents	% Response Rate
British Columbia	171	21	12.2
Prairies (MB, SK, AB)	223	78	35.0
Ontario	469	76	16.2
Quebec	88	30	34.1
Maritimes (PEI, NS, NFD), Nunavut, Yukon & NWT	91	11	12.1

Data Integrity

The researcher verified the data entry item by item by reviewing all valid questionnaires. A total of 10 errors was found, giving an error rate of 0.05%, and these errors were corrected.

Gender and Age Distributions

There was no significant difference between the observed and expected gender distribution compared to membership statistics for CAOT ($\chi^2 = .93$, $df=1$, $p= .335$) (Table 3).

There was no significant difference between the observed and expected age group distribution compared to membership statistics for CAOT ($\chi^2 = 1.93$, $df=5$, $p= .858$) (Table 4).

Table 3
Gender Distribution

Gender	Distribution of Respondents	
	Observed (valid n)	Expected
Males	11	15
Females	203	200
Total	214	

Note. Expected number is derived from statistics of CAOT membership (2004)

Table 4
Age Group Distribution

Age Group	Distribution of Respondents	
	Observed (valid n)	Expected
65 and over	1	2
55-64	10	12
45-54	46	48
35-44	74	69
25-34	82	80
24 and under	6	8
Total	219	

Note. Expected numbers were derived from statistics of CAOT membership (2004)

Primary Work Setting Distribution

There was a significant difference between the observed and expected distributions of respondents by primary work setting ($\chi^2 = 32.09$, $df=7$, $p=.000$) (see Table 5). The sample differs from the CAOT membership in that only those who work with older adults were requested to respond. Occupational therapists who work with older adults are more likely to work in hospital and rehabilitation settings, compared to community clinics or private health businesses; therefore the difference in distributions is expected. It must be noted that the responses from two respondents were excluded from the analysis because these respondents indicated two primary work settings.

Table 5
Distribution of respondents by primary work setting

Primary Work Setting	Observed (valid n)	Expected
general hospital	80	63
client's home	54	58
rehabilitation centre	34	28
community clinic	7	16
private health business	4	12
mental health centre	8	12
post secondary	1	11
chronic care/LTC	30	19
Total	218	

Note. Expected numbers were derived from statistics of CAOT membership (2004)

Geographic Region of Residence Distribution

As some of the provinces had expected numbers of practising occupational therapists less than five, the provinces were grouped into regions so that Chi-square could be used. The following regions were used: British Columbia, Prairie Provinces (Alberta, Saskatchewan, Manitoba), Ontario, Quebec, and lastly Maritimes/Territories (New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland, Nunavut, Yukon Territories, Northwest Territories). The rationale for the last category "Maritimes/Territories" was to group those with a small number of respondents together so as not to reduce the significance of the data, as would happen if they were grouped with large populations. Grouping them together meant that the distribution of therapists in those regions with only one or two respondents could be more accurately compared to expected distributions.

There was a significant difference in the distribution of the respondents compared to that of all occupational therapists practicing in Canada ($n=9,485$) (see Table 6) ($\chi^2 = 63.30$, $df=4$, $p<.001$). The proportion of responses was higher for the prairie provinces,

and lower for British Columbia, Quebec, and the Maritimes/Territories. Because the contacted individuals were members of CAOT, the regional distribution was subsequently compared to the distribution of membership in CAOT ($n = 5090$) (see Table 6). There was also a significant difference between the regional distribution of the respondents and the membership in CAOT ($\chi^2 = 46.19$, $df = 4$, $p < .001$). The proportion of respondents was higher in both Quebec and the Prairie Provinces, and lower in Ontario, British Columbia, and the Maritimes/ Territories.

Table 6
Region of Residence Distribution Compared to Canadian Practising OTs, and CAOT membership

Region of Residence	Distribution of Respondents		
	Observed (valid n)	Expected Canadian practising OTs ¹	Expected CAOT members ²
BC	21	28	26
Prairie Provinces	78	37	45
ON	76	77	98
QC	30	60	20
Maritimes & Territories	11	14	28
Total	216		
Chi Square Comparison (df=4, p<.001)		63.30	46.19

Note: 1: Derived from statistics from CAOT (2001) on all OTs in Canada ($n = 9,485$)

2: Derived from statistics on CAOT members only (2004) ($n = 5,090$)

Overall Description of Respondents

The gender, age groups and primary work setting of the respondents who completed the demographic information is provided in Table 7.

The largest proportion of respondents were female (94.9%), and were between the ages of 25 and 54 (92.3%). The majority (65.9%) worked in institutional settings (general hospital, rehabilitation centre, mental health centre or long term care).

Weighting of the data was not indicated for this study because exact frequencies and national distributions were not required to meet the objectives. Subsequent calculations of significant differences in responses for regions and workplaces were completed by comparison to the distribution of survey respondents rather than the national distributions.

Table 7
Overall Description of Respondents: Gender, Age Group, and Primary Work Setting

Characteristic	%(n) of the respondents
Gender (n= 214)	
male	5.1(11)
female	94.9(203)
Age Group (n=219)	
65 and over	0.5(1)
55-64	4.5(10)
45-54	21.4(47)
35-44	33.6(73)
25-34	37.3(82)
24 and under	2.7(6)
Primary Work Setting (n=216)	
general hospital	36.7(78)
client's home	24.8(54)
rehabilitation centre	15.6(34)
community clinic	3.2(7)
private health business	1.8(4)
mental health centre	3.7(8)
post secondary	0.5(1)
chronic care/LTC	13.8(30)

Objective 1: Use of General Theoretical Approaches

This objective corresponds to question 1 (a) to 1(d) of the survey (see Appendix C). The respondents rated how frequently they used four approaches. Frequency was defined as the percentage of the clients for which respondents assessed cognition. The overall reported frequency of use for each approach is shown in Table 8. The most frequently reported approach was the combined approach, with over 60% who stated they used this approach with "more than 75% of clients". The top-down and bottom-up approaches had the second and third highest frequencies respectively. The least was the Toglia/Abreu approach, for which about 40% reported they used it with "less than 25% of clients". The Toglia /Abreu question was also left blank by more respondents than the other approaches. For this reason, the Toglia/Abreu approach was omitted in subsequent analyses.

Table 8
Frequencies of approaches used for cognitive assessment
(Valid n=247)

Approach	less than 25% clients %(n)	25-50% of clients % (n)	50-75% of clients %(n)	more than 75% of clients %(n)	No response %(n)
Bottom-up	17.1(42)	24.0(59)	23.6(58)	35.4(87)	0 (0)
Top-down	11.4(28)	19.9(49)	21.1(52)	47.6(117)	0 (0)
Combined	11.0(27)	13.8(34)	13.8(34)	60.6(149)	.008(2)
Toglia/Abreu	40.2(99)	26.8(66)	11.8(29)	13.8(34)	7.3(18)

Cognitive Assessment Approaches and Region of Residence

For the Chi Square test, due to low counts in cells, frequencies of "50-75% of clients" and "more than 75% of clients" were combined. The use of each approach on more than 50% of clients was calculated. There were no significant differences in the distribution of approaches used on more than 50% of clients across regions (Table 9).

Cognitive Assessment Approaches and Primary Work Setting

Only the primary work settings with sufficient numbers for Chi Square analysis were included: "general hospital", "client's home", "rehabilitation centre", and "chronic care/LTC" (see Table 10). Four primary work settings were excluded because of insufficient numbers: "community clinic", "private health business", "post secondary", and "mental health centre".

There were statistically significant differences across work settings, in the reported use of every approach except the "combined" approach. Post hoc analyses (Chi squared (χ^2) using Yates continuity correction) showed that the "bottom-up" approach was used more frequently in both "general hospital" ($\chi^2=8.3$, $p=.004$) and "rehabilitation centre" ($\chi^2 = 7.75$, $p=.005$), compared to "client's home". The "top-down" approach was used more frequently in a rehabilitation centre compared to both "chronic care/LTC" ($\chi^2=6.4$, $p=.01$), and "client's home" ($\chi^2=11.4$, $p=.001$).

Table 9

Cognitive assessment approaches used with more than 50% of clients: differences across geographic regions

(Valid n=216)

Approach	Region					Chi Square (df=4)	p value
	BC (n=21)	Prairie Provinces (n=78)	ON (n=76)	QC (n=30)	Maritimes & Territories (n=11)		
Bottom-up % (n)	8.6(11)	38.3(49)	34.4(45)	14.8(19)	3.9(5)	1.95	.74
Top-down % (n)	10.1(15)	35.8(53)	35.1(52)	13.5(20)	5.4(8)	.23	.99
Combined % (n)	9.9(16)	34.0(55)	37.0(60)	13.6(22)	5.6(9)	1.84	.76

Note. based on the frequency of respondents indicating use of approach on at least "50% of clients"

Table 10

Cognitive assessment approaches used with more than 50% of clients: differences across workplaces

(Valid n=216)

Approach	Primary Work Setting				Chi Square (df= 3)	p value
	Gen hospital (n=80)	Client home (n=54)	Rehab centre (n=34)	Chronic/ LTC (n=30)		
Bottom-up % (n)	45.4(54)	18.5(22)	21.0(25)	15.1(18)	12.82	.005
Top-down % (n)	42.6(60)	24.8(35)	22.0(31)	10.6(15)	14.83	.002
Combined % (n)	40.1(61)	26.3(40)	19.7(30)	13.8(21)	3.61	.31

Note. based on the frequency of respondents indicating use of approach on at least "50% of clients"

Objective 2: Description of the Assessments and How often they are Used

This section corresponds to questions 2 (a) to 2 (e) of the survey (Appendix C). Respondents were asked to list up to five (5) assessments, either standardized or non-standardized, which they used to assess cognition with older adults. The responses were classified as either standardized or non-standardized, and grouped according to whether they used a bottom-up or top-down approach.

First, the results tabulated according to standardized and non-standardized methods will be reported, followed by the data regrouped according to bottom-up and top-down approaches.

Standardized Assessments:

A total of 65 standardized assessments were reported. The names and classification of these assessments into "bottom-up" and "top-down" groups is shown in Table 11 and 12. Over one third of these assessments ($n=20$, 30.7 %) were not found in a search of the occupational therapy literature, although they were found in the medical or neuropsychological literature. The occupational therapy literature includes the OT Database and text books (Bonder & Wagner, 2001; Duchek, & Abreu, 1997; Gelinas & Auer, 1996; Law, Baum, & Dunn, 2001; Neistadt, 2000; Crepeau, Cohn & Schell, 2003; Vining-Radomski, 2002). Assessments not previously noted in the occupational therapy literature are listed in Appendix J.

Three assessments not classified as cognitive assessments were placed in the "other" category. The assessments were: Geriatric Depression Scale (GDS), Boston Assessment of Severe Aphasia (BASA), and Pro 3000. These three assessments were removed from further analysis. Each of these eliminated assessments had been identified

by only one respondent; therefore, removing them did not affect the data reported for study objectives 3, 4 and 5.

The 15 most reported assessments were reported by at least 7 (3%) of respondents each. However, the majority of standardized assessments ($n=50$, 76.9 %) were reported by very few respondents ($n < 7$, $< 3\%$). Respondents were also requested to indicate how often they used each assessment. The 15 most reported assessments and how often they were used are shown in Table 13. The frequency of use that was indicated by the most respondents is marked with an asterisk.

The MMSE was both the most frequently reported assessment, and was used most often (most frequent response "2-4 times per week"). The majority of the 15 most frequently reported standardized assessments (60.0 %) were reported by the greatest number of respondents to be used "1-5 times per month". Percentages for the columns "how often used" were also calculated. A majority of the responses ($n=372$, 65.5%) was reported to be used either "2-4 times per week" or "1 to 5 times per month". Two of the assessments not previously reported in the occupational therapy literature were amongst the 15 most reported standardized assessments. These two assessments were the Executive Interview (EXIT) and the Independent Living Scales (ILS).

Table 11
Assessments Included in Bottom-Up Group

Group	Standardized Assessments included in group
Bottom up: short battery	Cognitive Competency Test (CCT) Neurobehavioral Cognitive Status Exam (NCSE/Cognistat) Rivermead Behavioral Memory Test (RBMT) Cognitive Assessment of Minnesota (CAM) Independent Living Scale (ILS) Loewenstein OT Cognitive Assessment (LOTCA) or LOTCA-G Bay Area Functional Performance Evaluation (BAFPE) Kohlman Evaluation of Everyday Living Skills (KELS) Hierarchic Dementia Scale Chessington OT Neurological Assessment Battery (COTNAB) Woodcock Johnson Test of Cognitive Ability Tests designed for acquired brain injury (SCATBI, NRS) Hopkins Verbal Learning Test (HVLIT) Weschler Adult Intelligence Scale (WAIS) Contextual Memory Test (CMT) Kingston Standardized Cognitive Assessment Dementia Rating Scale (DRS) Ross Information Processing Assessment- Geriatric (RIPA-G) Cognitive Mode Questionnaire (CMQ)
Bottom up: Screening	MMSE/Folstein Cognitive Assessment Scale of the Elderly (CASE/Pecpa-2r) Clock Drawing Test & Clox test Modified Mini Mental Status Exam (3MS) Brief Cognitive Rating Scale (BCRS) Stroke Unit Mental Status Exam (SUMSE) Severe Impairment Battery (SIB) Middlesex Elderly Assessment of Mental Status (MEAMS) Cognitive Assessment Screening Test (CAST) Montreal Cognitive Assessment (MOCA) Test for Severe Impairment (TSI)
Bottom up: domain specific	Executive Interview (EXIT) Motor Free Visual Perceptual Test (MVPT) Version 1 or 3 Trail Making Tests Visual Field Tests: Bell's Scanning Test, Useful Field of Vision Test Ontario Society of Occupational Therapist Perceptual Assessment Test of Everyday Attention (TEA) Frontal Assessment Battery (FAB) Other perceptual tests: (biVABA), Orientation Test for Aphasics, Dynavision Test of Visual Perceptual Skills (TVPS) Charron Test of Attention & Concentration Affective Test of Prosody (ATP) (executive function skills) Stroop test

Table 12
Assessments Included in Top- Down Groups

Top- down: task	Allen Cognitive Levels (ACL)& Large-ACL, ACL-90 ,or ACL-2000 Assessment of Motor and Process Skills (AMPS) Kitchen Task Assessment (KTA) Barthell ADL Assessment (modified) Structured Observational test of Function (SOTOF) Perceive Recall Plan Perform (PRPP) Functional Performance Measure Cognitive Performance Test (CPT) Amadottir OT Neurobehavioral Evaluation (A-ONE)
Top- down: client or caregiver report, observation	ADL assessment for Functional Independence Measure (FIM) Functional Autonomy Measurement System/(SMAF) Assessment of Living Skills and Resources (ALSAR) Canadian Occupational Performance Measure (COPM/MCRO) Disability Assessment for Dementia (DAD) SAFER Empirical Behavioral Pathology in Alzheimer's Disease Rating Scale (E-Behave-AD) Model of Human Occupation Screening Test (MOHOST) Limiting Long Standing Illness screen (LLSI) Bedford Alzheimer Nursing Severity scale: for the severely demented (BANS)

Table 13***15 Most Reported Standardized Assessments: How often Used***

Name of Assessment Reported	Frequency Respondents % (n)	How Often Used % (n)			
		Daily	2-4 times per week	1-5 times per month	Less than once a month
MMSE/Folstein	70.7 (159)	10.2 (16)	40.1 (63)*	39.5 (62)	10.2 (16)
Cognitive Competency Test (CCT)	56.4 (127)	0 (0)	6.3 (8)	49.2 (62)*	44.4 (56)
Neurobehavioral Cognitive Status Examination (NCSE/Cognistat)	34.7 (78)	1.3 (1)	20.8 (16)	44.2 (34)*	33.8 (26)
Cognitive Assessment Scale for the Elderly (CASE/Pecpa-2r)	17.8 (40)	0 (0)	5.3 (2)	55.3 (21)*	39.5 (15)
Executive Interview (EXIT)	12.0 (27)	3.7 (1)	11.1 (3)	40.7 (11)	44.4 (12)*
Rivermead Behavioral Memory Test (RBMT)	11.1 (25)	0 (0)	12.0 (3)	36.0 (9)	52.0 (13)*
Clock Drawing Test & Clox test	8.9 (20)	5.0 (1)	30.0 (6)	35.0 (7)*	30.0 (6)
Motor Free Visual Perceptual Test (MVPT)	84.5 (19)	0 (0)	11.1 (2)	50.0 (9)*	38.9 (7)
Cognitive Assessment of Minnesota (CAM)	7.5 (17)	0 (0)	12.5 (2)	37.5 (6)	50.0 (8)*
Independent Living Scales (ILS)	7.1 (16)	0 (0)	18.8 (3)	37.5 (6)	43.8 (7)*
Modified Mini Mental Status Exam (3MS)	5.3 (12)	8.3 (1)	41.7 (5)	41.7 (5)	8.3 (1)
Allen Cognitive Levels Tests (ACL)	5.3 (12)	8.3 (1)	16.7 (2)	66.7 (8)*	8.3 (1)
Trail Making Tests	4.8 (11)	18.2 (2)	9.1 (1)	54.5 (6)*	18.2 (2)
Assessment of Motor and Process Skills (AMPS)	4.5 (10)	0 (0)	11.1 (1)	66.7 (6)*	22.2 (2)
Kitchen Task Assessment (KTA)	3.1 (7)	0 (0)	0 (0)	50.0 (3)*	50.0 (3)*

* reported by the most respondents per assessment

Non-Standardized Assessments

The non-standardized assessments were categorized into 9 groups. The results showing the non-standardized assessments and examples of tasks included within each type are shown in Table 14. A respondent may have identified more than one assessment in a group. These non-standardized assessments were also categorized according to theoretical approach into bottom-up and top-down groups. The non-standardized assessments "Interview of client or unspecified" and "Interview of others" were placed in an "other" category. The types of non-standardized assessments, from most frequently cited to least, are shown in Table 15. Although the theoretical approach that includes interviews (combined approach) was reported with high frequency with the first survey question, it was reported with lower frequency in this section of the survey. Only 19.6 % of respondents listed an interview, and 2.7% listed an interview of a caregiver, whereas, in the first part of the questionnaire, 60.6% of respondents indicated they used a combined approach with "more than 75% of clients" (Table 8).

The non-standardized assessment type cited by the most respondents was General ADL assessment, followed by "Kitchen Task". These assessments were reported to be used less often than the interview, or clinical observation.

Table 14
Non-Standardized Assessment Types and Examples of Tasks

Assessment Type		Examples of tasks
Top-down:	General ADL	dressing, bathing, feeding assessments
	Kitchen task	making tea or coffee, "cooking safety"
	Clinical Observation	task group, clinical observations, general functional observation, "transfer assessment"
	IADL	financial task, calendar, sorting coins, "medication trial", computer, driving.
	Home	home visit, or independent living suite trial
Bottom-up:	Ability to navigate	"w/c mobility (LTC)", "finding own room"
	Domain Specific	"sorting shapes", "colored ball sort (non-standardized)", "word list"
Other:	Interview client or unspecified	includes "interview of client", "interview", safety scenarios
	Interview of others	family or caregiver interview

Table 15
Non-standardized Assessment Type and How Often Used

Assessment Type	Respondents	Periodic Use			
		Daily	2-4 times per week	1-5 times per month	Less than once a month
General ADL	65	20	25*	15	4
Kitchen task	58	0	3	41*	14
Interview (client or unspecified)	48	20*	13	13	2
Clinical Observation	39	21*	6	10	3
IADL	11	1	0	7*	3
Interview of others	6	1	3*	0	2
Home	6	1	0	4*	1
Domain specific	6	0	3*	2	1
Ability to navigate	4	0	1	2*	1

*reported by the most respondents per assessment

Note. percentages cannot be indicated because respondents could identify more than one assessment within each group

Assessments Grouped by Theoretical Approach:

A total of 46 assessments using the bottom-up approach were reported (Tables 11 and 14). Of these, 45 (97.8%) were standardized assessments (Table 11), and 18 (39.1%) were not found in a search of the current occupational therapy literature (see Appendix J). For the top-down category, a total of 29 assessments were found (Tables 12 and 14). Of these, 19 (65.5%) were standardized assessments (Table 12).

The results for the assessment groups are shown in Table 16. For both assessment groups, a respondent may have cited more than one assessment in a group; therefore, percentages for citing each group could not be calculated. The results show that the bottom-up approach was the most frequently reported. For both the bottom-up and top-down groups, respondents reported using the assessments "1-5 times per month" with the highest frequency. When overall totals are calculated, the majority of responses (62.9%) indicated the assessments were used either "2-4 times per week" or "1-5 times per month".

Table 16
Standardized Assessment Groups and How often Used

Assessment Group	Responses (n)	How Often Used (n)			
		Daily	2-4 times per week	1-5 times per month	Less than once a month
Bottom up	649	24	127	272*	208
Top- down	236	46	40	104*	42

* reported by the most respondents per group

Note. percentages cannot be calculated because respondents could identify more than one assessment within each group

Objective 3: Purposes for which the Assessments were Used

The respondents were asked to indicate any or all of three purposes that applied to each assessment. The three purposes were: 1) "identify deficits (includes screening or more detailed assessment)", 2) "predict (safety, compensation or need for service in the community)" and 3) "measure change (includes obtaining baseline, measures outcomes)" (see questionnaire, Appendix C).

Purpose for Using Standardized Assessments:

Table 17 shows the reported purposes for use of the 15 most frequently reported standardized assessments. The purpose for each assessment that accumulated the most responses was marked with an asterisk. The most common purpose for 11, (73.3%) of the 15 standardized assessments was to "identify deficits".

Table 17
Purposes for Using 15 Most Frequently Reported Standardized Assessments

Assessments Reported	Purpose (N) (columns not mutually exclusive)		
	Identify Deficits	Predict	Measure Change
MMSE/Folstein	143*	39	85
Cognitive Competency Test (CCT)	101	108*	31
Neurobehavioral Cognitive Status Examination (NCSE/Cognistat)	74*	33	26
Cognitive Assessment Scale for the Elderly (CASE/Pecpa-2r)	35*	18	19
Executive Interview (EXIT)	24*	14	10
Rivermead Behavioral Memory Test (RBMT)	23*	13	16
Clock Drawing Test & Clox test	19*	8	4
Motor Free Visual Perceptual Test, Version 1 or 3	17*	11	4
Cognitive Assessment of Minnesota (CAM)	16*	9	7
Independent Living Scales (ILS)	14	15*	4
Modified Mini Mental Status Exam (3MS)	12*	3	4
Allen Cognitive Levels & Large-ACL, ACL-90, or ACL-2000	10	12*	4
Trail Making Tests	11*	6	2
Assessment of Motor and Process Skills (AMPS)	7	8*	4
Kitchen Task Assessment (KTA)	7*	6	2

*purpose reported by the most respondents per assessment

Note: percentages cannot be calculated because respondents could indicate the purpose for more than one assessment

Purposes for Using Non-Standardized Assessments:

Table 18 shows the purposes for using the non-standardized assessments. The most common purpose indicated for each assessment was marked with an asterisk. The number of assessments used to "predict" and "measure change" was equal. In comparison to the standardized assessment results, a greater proportion of responses indicated non-standardized assessments were used to "predict". Also, in comparison to standardized assessments, a smaller proportion of responses indicated the non-standardized assessments were used to "measure change".

Table 18
Purposes for using Non-Standardized Assessments

Assessment Type	Purpose		
	Identify Deficits (n)	Predict (n)	Measure Change (n)
General ADL	55	57*	29
Kitchen task	43	55*	5
Interview (client or unspecified)	42*	29	7
Clinical Observation	36*	29	25
IADL	10	11*	2
Interview of others	6*	4	2
Home	4	5*	2
Ability to navigate	3	3	1
Domain specific	4*	3	0

*purpose reported by the most respondents per assessment group

Note: percentages cannot be calculated because respondents could indicate the purpose for more than one assessment

Purposes for Using Theoretical Approaches

The results for the assessments grouped by theoretical approach are shown in Table 19. The most frequently indicated purpose was marked with an asterisk for each group. Bottom-up assessments were more frequently reported to be used to "identify deficits". Top-down assessments, were more frequently reported to be used to "predict".

Table 19
Purpose for Using Theoretical Approach Groups

Assessment Group	Purpose (columns not mutually exclusive)		
	Identify deficits	Predict	Measure Change
Bottom-up	570*	316	242
Top-down	195	208*	88

*purpose reported by the most respondents per assessment group

Note: percentages could not be calculated because respondents could identify more than one assessment within each group

Objective 4: Perceived Importance of Reasons for Choice of the Assessments

Ten possible reasons for choice of an assessment were generated from the literature review. The respondents were asked to rate the perceived importance of each reason for each assessment they listed. An "other" reason was also provided, with a blank for the respondents to specify the reason, however, this category was rarely completed and did not rank within the highest or lowest categories. For each reason, the percentage of therapists ranking it as "4" or "5" (important) was calculated, as well as the percentage with the lowest ranking "1" or "2" (not important). For each assessment, the three (3) reasons with the highest percentage of "4" or "5" rankings were tabulated. As well, the one reason with the highest percentage of "1" or "2" rankings was tabulated. The results are shown in Tables 20 to 22.

Reasons for Choosing Standardized Assessments

The reasons which had the highest perceived importance rating amongst these 15 assessments are shown in Table 20. Several reasons were ranked important for the majority of the assessments: "It is easily administered in my work setting (e.g. resources, space, setup)", "It gives me the type of information I require to assist the team, client, and/or family", and "It can be administered in a reasonable amount of time". Two reasons were ranked the least important: "It is used by my colleagues", and "It fits with my theoretical approach".

Reasons for Choosing Non-Standardized Assessments

The non-standardized assessment groups were also analyzed for most and least popular reasons for choice. The results are shown in Table 21. The results differ from the reasons for choice of standardized assessments. The reasons that were ranked highest most of the time were, not only "It gives me the type of information I require to assist the team, client, and/or family", but also "It fits with my theoretical approach". The reason that was ranked lowest most of the time (7 of 9 types) was "It was reported to have good reliability, validity or responsiveness for its stated purpose".

Respondents also could indicate "other" and describe an alternate reason. This option was chosen rarely, except in the case of the Mini Mental Status Exam (MMSE) and Cognitive Competency Test (CCT). Respondents for the MMSE used this option most frequently (n=21, 13.2%), and the most frequently described reason was that the MMSE was requested by others, such as the physician, the team, or the program (n=19, 11.9 %). For the CCT, the "other" reason most frequently described was that the testing tasks were related to daily function and/or appeared to have face validity (n=6, 4.7%). These reasons were not reported in sufficient numbers for them to be designated as one of the three highest ranked reasons. The numbers of respondents that ranked them as "important" or "very important" was lower than for all the other reasons; therefore they were not included in the overall summary table.

Table 20
Reasons for Choosing Standardized Assessments

Assessment Name	Reasons for Choice of Assessment									
	available	used by colleagues	Reported valid/reliable	Easily interpreted	Type of info needed	Administration time	Easy in setting	familiarity	Learning time	Fits theoretical approach
MMSE/Folstein	•					•	•			X
Cognitive Competency Test (CCT)	•	X		•	•					
Neurobehavioral Cognitive Status Examination (NCSE/Cognistat)	•			•			•			X
Cognitive Assessment Scale for the Elderly (CASE/Pecpa-2r)		X	•		•		•			
Executive Interview (EXIT)	•	X			•	•				
Rivermead Behavioral Memory Test (RBMT)		X		•	•		•			
Clock Drawing Test & Clox test	•					•		•		X
Motor Free Visual Perceptual Test (MVPT)					•	•	•			X
Cognitive Assessment of Minnesota (CAM)	•	X		•	•					
Independent Living Scales (ILS)		X		•	•		•			
Modified Mini Mental Status Exam (3MS)						•	•	•		X
Allen Cognitive Levels Tests (ACL)		X	•		•		•			
Trail Making Tests	•					•	•			X
Assessment of Motor and Process Skills (AMPS)	•						•	•	X	
Kitchen Task Assessment (KTA)		X			•	•		•		
Total •	8		2	5	9	7	10	4		
Total X		8							1	6

•: 3 reasons rated "important" by greatest numbers of respondents

X: reason rated "not important" by greatest numbers of respondents

Table 21
Reasons for Choosing Non- Standardized Assessments

Assessment Type	Reasons for Choice of Assessment									
	available	used by colleague.	Reported valid/reliable	Easily interpreted	Type of info needed	Administration time	Easy in setting	familiarity	Learning time	Fits theoretical approach
General ADL	•		X		•					•
Kitchen task			X		•			•		•
Interview (client or unspecified)			X		•		•			•
Clinical Observation			X		•			•		
IADL			X		•			•		•
Interview of others		X			•		•			•
Home Visit			X		•			•		•
Domain specific	•	X				•	•			
Ability to navigate			X		•	•				•
Total √	2				8	2	3	4		7
Total X		2	7							

•: 3 reasons rated "important" by greatest frequencies of respondents

X: reason rated "not important" by greatest frequency of respondents

Reasons for Choosing Theoretical Approaches

The reasons of choice were summarized for the assessments grouped by theoretical approach (see Table 22). The three reasons most frequently ranked "important" or "very important" were tabulated for each assessment, as was the one reason most frequently ranked "not important". The total number of assessments for which each reason was ranked "important" or "very important" was calculated. Likewise, the total number of assessments for which each reason was ranked "not important" was calculated. Those reasons ranked high or low for the greatest number of assessments were tabulated, and are shown in Table 22.

For the bottom-up group, the three reasons ranked "important" or "very important" for the greatest number of assessments were: "It is easily administered in my work setting (e.g. resources, space, and setup)". "It can be administered in a reasonable amount of time" and "It is available". The reason ranked "not important" for the greatest number of assessments was: "It fits with my theoretical approach".

For the top-down group, the three reasons ranked "important" or "very important" for the greatest number of assessments were: "It gives me the type of information required for the team, client or family", "It fits with my theoretical approach", and "I am familiar with it". The reason ranked "not important" for the greatest number of assessments was "It is used by my colleagues".

The results for the standardized versus non-standardized top-down assessments were compared. For both groups, the reasons ranked "important" and "not important" for the most assessments did not differ. When comparing the reasons for choosing assessments, the overall trends did not show differences between the standardized and non-standardized groups, but they did between the bottom-up and top-down groups.

Table 22
Reasons for Choosing Theoretical Approach Groups

Assessment Group	Reasons for Choice of Assessment									
	available	used by colleagues	Reported valid/reliable	Easily interpreted	Type of info needed	Administration time	Easy in setting	familiarity	Learning time	Fits theoretical approach
Bottom-up	•					•	•			X
Top-down		X			•			•		•

•: 3 reasons rated "important" for the greatest number of assessments
X: reason rated "not important" for the greatest number of assessments

Objective 5: Variation of Assessment choice by Region, and Practice Setting

Regional Use of Theoretical Approaches

The assessments were grouped according to whether they employed a bottom-up, top-down or interview ("combined") approach. The rationale for this was to compare the results to the first objective, in which respondents were requested to report the approaches they used. The "interview" category included only non-standardized interviews, and it must be noted that this type of assessment was likely under-reported. Therefore, comparisons were not made between groups, but only within each group to determine the variance on distribution of responses.

Respondents were asked to indicate the frequency of use for each assessment on a scale of 1 to 4, with 1= "les than once a month" 2= "1-5 times per month" 3= "2-4 times per week" and 4 = "daily". Scores of 3 and 4 out of 4 were combined because frequencies for some categories were too small for a Chi square calculation, as in Objective 1 (see Table 9). Thus, the distribution of respondents who reported at least one assessment being used at least "2 times per week" was calculated. The results for bottom-up, top-down and interview assessments are shown in Table 23.

There was no significant regional difference in the frequency of reporting specific top-down, bottom-up or interview assessments. This is consistent with the results reported on the general approaches used, which also did not vary by place of residence (Table 9).

Table 23
Regional Use of Theoretical Approach Groups

Assessment group	Region					Chi Square (df=4)	p value
	BC (n=21) %(n)	Prairie Provinces (n=78) %(n)	ON (n=76) %(n)	QC (n=30) %(n)	Maritimes & Territories (n=11) %(n)		
Bottom-up	33.3(7)	52.5(41)	52.6(40)	43.3(13)	36.4(4)	3.45	.485
Top-down	47.6(10)	34.6(27)	34.2(26)	46.7(14)	18.2(2)	4.71	.319
Non-Standardized Interview	23.8(5)	15.4(12)	13.2(10)	10(3)	18.2(2)	2.47	.65

Note. based on the frequency of respondents indicating use of an assessment at least "2 times per week"

Regional Use of Standardized Assessments

The results for the 15 most reported standardized assessments by geographic region are shown in Table 24. The Mini Mental Status Exam (MMSE) and Cognitive Competency Test (CCT) were used across the country, in sufficient numbers to calculate a Chi square statistic. There was no significant difference in the regional use of the MMSE ($\chi^2=5.0$, $p=.28$, $df=4$). There was a significant difference with the CCT ($\chi^2=15.7$, $p<.01$, $df=4$), and it was used less in Quebec than expected. Insufficient numbers for calculation of Chi square were present with the remainder of the 15 most reported assessments; however the data (Table 24) suggest that there were regional differences assessment choice. For example, the EXIT and the ACL were reported almost exclusively part by respondents living in the prairies provinces. The AMPS and the CASE/Pecpa were reported only by respondents living in Ontario and Quebec.

Regional Use of Non-Standardized Assessments

The results for the non-standardized assessments according to place of residence are shown in Table 25. Chi square values could not be calculated because each assessment had cells with expected frequencies less than 5. However, the general trend was that the three most popular non-standardized assessments were used across all regions at similar rates: General ADL assessment, Kitchen assessment and Interview of Client (or unspecified). General Clinical Observation assessments were reported at a somewhat higher rate in Quebec than other provinces, and this was likely because there was a greater proportion of respondents from Quebec who worked primarily in long term care. The remaining assessments were reported with similar frequencies across the regions.

Table 24***Regional Use of 15 Most Reported Standardized Assessments***

Assessment Name %(n)	Region of Residence				
	BC (n=21)	Prairie Provinces (n=78)	ON (n=76)	QC (n=30)	Maritimes/ Territories (n=11)
MMSE/Folstein	8.6(13)	38.8(59)	36.8(56)	11.8(18)	3.9(6)
Cognitive Competency Test (CCT)	6.5(8)	39.5(49)	41.1(51)	7.3(9)	5.6(7)
Neurobehavioral Cognitive Status Examination (NCSE/Cognistat)	9.1(7)	70.1(54)	19.5(15)	0	1.3(1)
Cognitive Assessment Scale for the Elderly (CASE/Pecpa-2r)	0	2.7(1)	35.1(13)	56.8(21)	5.4(2)
Executive Interview (EXIT)	0	96.2(25)	3.8(1)	0	0
Rivermead Behavioral Memory Test (RBMT)	0	13.0(3)	65.2(15)	21.7(5)	0
Clock Drawing Test & Clox test	15.0(3)	20.0(4)	40.0(8)	15.0(9)	10.0(2)
Motor Free Visual Perceptual Test (MVPT)	16.7(3)	16.7(3)	38.9(7)	16.7(3)	11.1(2)
Cognitive Assessment of Minnesota (CAM)	17.6(3)	52.9(9)	17.6(3)	0	11.8(2)
Independent Living Scales (ILS)	35.7(5)	42.9(6)	14.3(2)	0	7.1(1)
Modified Mini Mental Status Exam (3MS)	16.7(2)	16.7(2)	50.0(6)	8.3(1)	8.3(1)
Allen Cognitive Levels (ACL)	0	83.3(10)	16.7(2)	0	0
Trail Making Tests	27.3(3)	27.3(3)	27.3(3)	18.2(2)	0
Assessment of Motor and Process Skills (AMPS)	0	0	40.0(4)	60.0(6)	0
Kitchen Task Assessment (KTA)	16.7(1)	16.7(1)	33.3(2)	16.7(1)	16.7(1)

Note. percentages by column cannot be calculated because respondents could identify more than one assessment.

Table 25
Regional Use of Non-Standardized Assessments

Assessment Name %(n)	Region of Residence				
	BC (n=21)	Prairie Provinces (n=78)	ON (n=76)	QC (n=30)	Maritimes/ Territories (n=11)
General ADL	7.9(5)	34.9(22)	38.1(24)	12.7(8)	6.3(4)
Kitchen task	7.0(4)	43.9(25)	35.1(20)	8.8(5)	5.3(3)
Interview (client or unspecified)	19.6(9)	32.6(15)	28.3(13)	13.0(6)	6.5(3)
Clinical Observation	10.3(4)	35.9(14)	20.5(8)	33.3(13)	0
IADL	9.1(1)	18.2(2)	54.5(6)	18.2(2)	0
Interview of others	20.0(1)	20.0(1)	40.0(2)	0	20.0(1)
Home Visit	0	33.3(2)	33.3(2)	16.7(1)	16.7(1)
Domain specific	0	0	75.0(6)	12.5(1)	12.5(1)
Ability to navigate	25.0(1)	25.0(1)	50.0(2)	0	0

Note. percentages by column cannot be calculated because the assessments are not mutually exclusive

Primary Work Setting Use of Theoretical Approaches

The assessments were grouped according to the theoretical approach used (bottom-up and top-down). This was done in order to compare the frequencies of specific assessments reported to the frequencies of the approaches reported in the first objective (see Table 10).

As with the data for Objective 1 (Table 10) four work settings had a sufficient number of responses to be analyzed with Chi Square statistics, therefore only these four settings were analyzed. Responses for rankings "3" and "4" out of 4 rankings were combined into a single category: at least "2 times per week". Thus, the distribution of respondents who reported at least one assessment being used at least "2 times per week" was calculated. The distribution of assessment groups by workplace for bottom-up, top-down and interview assessments are shown in Table 26.

Across work settings there was a statistically significant difference in the distribution of bottom-up ($\chi^2=33.9$, $df=3$, $p<.001$), and top-down assessments ($\chi^2=9.41$, $df=3$, $p=.024$). There was no significant difference in the distribution of reporting interviews, which were used across all settings. Post hoc analyses showed that the "bottom-up" approach was reported significantly more in both "general hospital" ($\chi^2=26.97$, $df=1$, $p<.001$) and "rehabilitation centre" ($\chi^2=6.27$, $df=1$, $p=.012$), compared to "client's home". The "top-down" assessments were reported significantly more in the "general hospital" ($\chi^2=8.12$, $p=.004$) compared to "client's home". The "top down" assessments also were reported at a higher rate in "rehabilitation centre" compared to "client's home", at a level that was approaching significance ($\chi^2=3.77$, $p=.052$).

Table 26
Primary Work Setting Use of Theoretical Approach Groups

Assessment Group	Primary Setting of Work				Chi Square (df= 3)	p value
	Gen hospital (n=80)	Client home (n=54)	Rehab centre (n=34)	Chronic/LTC (n=30)		
Bottom-up n(%)	59(73.8)	14(29.9)	18(52.9)	10(33.3)	33.19	<.001
Top-down n(%)	39(48.8)	12(22.2)	14(41.2)	11(36.7)	9.41	.024
Non-Standardized Interview n(%)	12(15.0)	9(16.7)	5(14.7)	4(13.3)	.22	.97

Note: based on the frequency of respondents indicating use of an assessment at least "2 times per week"

Primary Work Setting Use of Standardized Assessments

The use of the standardized assessments was examined according to the respondents' primary setting of work (see Table 27). Most assessments had insufficient frequencies to calculate a Chi square statistic. The trends suggest that for most assessments, there was variation in use across work settings. The MMSE was used more frequently in the general hospital and client's home than the rehabilitation centre or long-term care facility. The CCT and NCSE were reported in higher frequencies in rehabilitation centers. It was noted that the Clock Drawing Test was reported only in the "general hospital" and "client's home". The exception was the CASE/Pecpa for which there was no difference in usage across work settings.

Primary Work Setting Use of Non-Standardized Assessments

The frequency of using non-standardized assessments was calculated according to the respondents' primary setting of work and are presented in Table 28. The four most frequently reported non-standardized assessments had sufficient frequencies to calculate a Chi Square statistic, and the remainder did not. There was no significant difference in the number of respondents who used "Interview of client (or unspecified)" across work settings. There was a significant difference in the usage of "General ADL" and "Kitchen task" across different work settings. "Clinical Observation" had significantly different frequencies of respondents who reported its use across work settings, it more frequently used in long term care facilities than in "General Hospital", "Client's Home", or "Rehabilitation Centre".

Table 27
Primary Work Setting Use of Standardized Assessments

Assessment Name %(n)	Primary Work Setting				Pearson's Chi Square df=3	p value
	general hospital (n=80)	client's home (n=54)	rehabilita tion centre (n=34)	chronic care/ LTC (n=30)		
MMSE/Folstein	45.3(63)	28.1(39)	12.9(18)	13.7(19)	8.42	.04
Cognitive Competency Test (CCT)	49.2(58)	22.9(27)	20.3(24)	7.6(9)	19.8	<.005
Neurobehavioral Cognitive Status Examination (NCSE/Cognistat)	46.4(32)	15.9(11)	24.6(17)	13.0(9)	9.3	.026
Cognitive Assessment Scale for the Elderly (CASE/Pecpa-2r)	40.0(14)	20.0(7)	17.1(6)	22.9(8)	2.4	.495
Executive Interview (EXIT)	30.4(7)	21.7(5)	26.1(6)	21.7(5)	n/a	
Rivermead Behavioral Memory Test (RBMT)	29.2(7)	20.8(5)	45.8(11)	4.2(1)	n/a	
Clock Drawing Test & Clox test	61.1(11)	38.9(7)	0	0	n/a	
Motor Free Visual Perceptual Test (MVPT)	29.4(5)	17.6(3)	35.3(6)	17.6(3)	n/a	
Cognitive Assessment of Minnesota (CAM)	57.1(8)	21.4(3)	7.1(1)	14.3(2)	n/a	
Independent Living Scales (ILS)	33.3(4)	50.0(6)	16.7(2)	0	n/a	
Modified Mini Mental Status Exam (3MS)	54.5(6)	18.2(2)	9.1(1)	18.2(2)	n/a	
Allen Cognitive Levels (ACL)	50.0(6)	8.3(1)	25.0(3)	16.7(2)	n/a	
Trail Making Tests	30.0(3)	40.0(4)	20.0(2)	10.0(1)	n/a	
Assessment of Motor and Process Skills (AMPS)	10.0(1)	30.0(3)	40.0(4)	20.0(2)	n/a	
Kitchen Task Assessment (KTA)	60.0(3)	20.0(1)	20.0(1)	0	n/a	

Table 28
Primary Work Setting Use of Non-Standardized Assessments

Assessment Group	Primary Setting of Work				Pearson's Chi Square (df= 3)	p value
	general hospital (n=80)	client's home (n=54)	rehabilitation centre (n=34)	chronic care/LTC (n=30)		
General ADL %(n)	55.0(33)	18.3(11)	18.3(11)	8.3(5)	9.51	.023
Kitchen task %(n)	52.8(28)	22.6(12)	20.8(11)	3.8(2)	9.92	.019
Interview (client or unspecified) %(n)	32.6(14)	32.6(14)	14.0(6)	20.9(9)	2.30	.512
Clinical Observation %(n)	22.9(8)	28.6(10)	14.3(5)	34.3(12)	13.7	.003
IADL %(n)	33.3(4)	25.0(3)	8.3(1)	33.3(4)	n/a	
Interview of others %(n)	0	50.0(3)	33.3(2)	16.7(1)	n/a	
Home Visit %(n)	0	40.0(2)	40.0(2)	20.0(1)	n/a	
Domain specific %(n)	40.0(2)	0	40.0(2)	20.0(1)	n/a	
Ability to navigate %(n)	0	25.0(1)	25.0(1)	50.0(2)	n/a	

Summary of Results

This chapter included results showing the overall theoretical approaches therapists used, the purposes and reasons for using specific assessments and differences among regions and primary work settings. The theoretical approach that was most popular was the combined approach which uses an interview along with either a bottom-up or top-down assessment. The results listing specific assessments were grouped in two ways: a) standardized and non-standardized and b) bottom-up and top-down theoretical approaches. These groupings were similar because most of the bottom-up assessments were standardized, and the top-down assessments non-standardized. Assessments with the same theoretical approach were seen to be used for similar purposes and chosen for similar reasons. Bottom-up assessments were used for identification of deficits and chosen because of ease of use. Top-down assessments were used for both identification of deficits and prediction, and chosen for fit with theoretical approach, and the value of the information they provided. Amongst regions, there were differences in use of specific assessments, but the use of overall theoretical approaches was similar across the country. Amongst work settings, there were significant differences, with greater use of cognitive assessments reported in hospitals and rehabilitation centres. In the next chapter, the discussion of each research objective is organized to examine the differences in the therapists' use of bottom-up and top-down cognitive assessments.

Chapter 4:

Discussion

Overview of the Study

This was a descriptive study of Canadian occupational therapists who identified themselves as working with older adults. The study addressed five objectives: (1) To describe the frequency of use of four theoretical approaches and determine if it differed with geographic region or work setting; (2) To describe which assessments (standardized and non-standardized; bottom-up and top-down) the respondents were using, and how often; (3) To describe the purposes and (4) the importance of reasons why assessments were used; and (5) to determine if the pattern of assessments used differed according to geographic region and work setting.

A survey questionnaire was developed, in web-based and postal formats. The questionnaire consisted of 3 parts: *theoretical approaches, assessments used, and demographics*. Requests to complete the survey were sent to a stratified random sample of 1042 occupational therapists from the "OT Networker" database (CAOT, 2004b), who had identified that they had direct client contact with older adults. One follow up reminder was sent to the therapists three weeks later. Of the 1008 deliverable surveys, 247 responses were collected. The response rate of 24.5% was lower than the anticipated 35% response rate indicating that response bias may have occurred. Respondents self identified working with older adults, and participants may have been those who were more interested in cognitive assessment compared to those who did not volunteer. The

response rate may have been reduced by several other factors. Although the questionnaire only took up to 20 minutes, this amount of time may have been too onerous for some respondents. The therapists may have not responded if they felt they did not use valid and reliable assessments, if they felt their clinical experience was not valuable, or if they perceived that they did not work with sufficient numbers of older adults. The lower response rate reduces the accuracy of the data; however, the number of responses was considered to fall within acceptable limits for data analysis (Oppenheim, 1992; Streiner & Norman, 1995).

Description of the Respondents

The regional distribution of the sample was compared to the population of all Canadian occupational therapists, because these were the data which were used to stratify the sample. Other demographic information was not available for all Canadian occupational therapists so age, gender and workplace demographics were compared to the members of the Canadian Association of Occupational Therapists (CAOT). The sample was representative of members of CAOT in terms of gender and age distribution. The sample differed from the members of CAOT in terms of primary setting of work. This likely was a reflection of the inclusion criteria because only those therapists who identified that they worked with older adults were included. This population of therapists is less likely to be working in the schools or in workplaces, and more likely to be working in hospitals and long term care facilities.

The sample differed from the population of all Canadian occupational therapists in terms of region of residence. The sample contained a higher proportion of residents from the prairie provinces and a lower proportion from Quebec. The region of residence

also differed from the membership of CAOT, because it contained a higher proportion of residents of both the prairie provinces and Quebec. A contributing factor to this difference may have been source of the request, from a University of Alberta address with letterhead. This made it more familiar and recognizable to those who studied or worked in the prairie provinces. It was noted that the overall response rate from Quebec was the highest of all regions, yet the number in the sample was lower than the proportion of occupational therapists in Quebec. Because the Quebec response rate was relatively high, the greatest factor in the smaller sample from Quebec was the lack of Quebec residents in the CAOT database. An attempt was made to overcome this by sending direct emails to known contacts, and placing an item in the provincial newsletter. The implications of having more or fewer respondents from one region of the country may have affected the rankings of assessments in that those used in an underrepresented province may have been ranked higher on the list of the 15 most reported standardized assessments. However, the distribution of respondents by region would likely not have affected other results regarding theoretical approaches because their use did not differ across regions.

Occupational Therapists' Use of Theoretical Approaches for Cognitive Assessment

The combined approach, which includes both direct observation and interview, was the most popular approach amongst the respondents. This approach is recommended in the literature in a review of validity of cognitive assessments (Wells et al., 2003), and in a study demonstrating increased validity when using interviews in combination with bottom-up cognitive assessments (MacKinnon & Mulligan, 1998). The Toglia/Abreu approach showed the lowest rate of use with clients, and many respondents did not answer this question. It is likely that fewer respondents were familiar with this approach, as it is an approach that is used with specific occupational therapy assessments (Duchek & Abreu, 1997). Because of the low number of responses for this item, the data could not be further analyzed, however, therapists may be using some of the principles of analyzing strategies when using non-standardized assessments, for example in home care, as is discussed with the results from home care (p. 79). This approach requires a more specialized understanding of assessment, which may require specific workshops and training, therefore, reporting of this approach may have been affected by lack of knowledge, and lack of ready access to the information on the part of the respondents.

There was no significant difference in use of the theoretical approaches between geographic regions of the country. This suggests that Canadian occupational therapists are employing similar cognitive assessment approaches with older adults across geographic regions of the country.

However, when the approaches were examined according to primary work setting, a significant difference was found. Post hoc testing demonstrated that the "bottom-up" approach was reported at a significantly higher rate in both "general hospital" and "rehabilitation centre", compared to "client's home". The "top-down" approach was

reported at a significantly higher rate in the rehabilitation centre compared to both "chronic care/LTC", and "client's home". Workplace differences in use of the approaches indicate that there may be differing requirements for types of assessment information, or differing resources for assessment across settings. Firstly, most of the approaches were used less often in the client's home. Although the survey introduction requested information on cognitive assessment of older adults, the respondents may have reported on their entire caseload. Thus, if therapists in home care see fewer clients who require cognitive assessment than therapists working in acute care and rehabilitation hospitals, this would have contributed to the difference in frequency of assessment.

Second, occupational therapists working in general hospitals and rehabilitation used the bottom-up approach more often. This approach provides information about specific cognitive domains when screening and identifying deficits (Vining-Radomski, 2002), which is likely more frequent in these settings. Occupational therapists in rehabilitation centres use the top-down approach more often than those in long-term care and home care. This may reflect the need for detailed assessments of Activities of Daily Living (ADL) to assist with the more complex discharge issues that may occur with clients who have required a longer period of rehabilitation. However, this result may simply reflect the lower number of assessments reported by those in home care and long-term care.

Which Cognitive Assessments Were Reported and How Often?

A longer list of assessments was reported than in the previous informal survey (Aronson et al. 2002). Many of the total number of assessments were used by only a few therapists, indicating a wide variation in occupational therapy practice when assessing

cognition with older adults. A significant number ($n=20$, 30.7%) had not been previously reported in the occupational therapy literature. Amongst the list of assessments not previously reported, two were noted amongst the 15 most reported standardized assessments in this survey: the Executive Interview (EXIT), and the Independent Living Scales (ILS). These assessments have been documented in the health care literature (MEDLINE), but have not yet been reported to be used by occupational therapists. These assessments are more recently developed, with less opportunity for studies to have been published in the occupational therapy literature. It also shows that occupational therapists are employing assessments developed by and for other professions in their clinical practice. This does not imply good or poor clinical practice, since many cognitive assessments with excellent psychometric properties have been developed by other professions. Many of these tests have been designed so as not to require specific credentials in other professions, and occupational therapists are qualified to administer them.

A greater number of respondents listed standardized assessments than non-standardized. A desirability bias towards standardized assessments may have influenced this result. Many therapists may have considered only standardized assessments when asked to list the assessments they use, despite the fact that the questionnaire cued them to recall both standardized and non-standardized assessments. It was noted that many more respondents indicated using interviews when rating a list in the first part of the questionnaire, whereas in the second part much fewer listed "interview" as one of their 5 assessments. This provided evidence of a non-standardized test that was likely under-reported in part 2. Given the current emphasis on evidence-based practice, many

therapists may perceive that they are to be using standardized assessments and discounted non-standardized assessments in their minds when generating their own list.

Because of the lower response rate, some assessments in clinical use may not have been captured in this survey. Nevertheless, these data indicate that there is a wide range of practice with regard to choice of cognitive assessments with older adults. These results can be used in several ways. They can form the basis for a critical review of the assessments to assist occupational therapy clinicians and researchers in their choice of assessments. They can also inform researchers regarding the most popular assessments in current use. Finally, they can inform occupational therapy educators when considering updating preparation for clinical practice.

The assessment of older adults' cognition by occupational therapists is a frequent clinical practice. The majority of responses (65.5%) indicated that the assessments are used between two times per week and once a month. The most reported assessment was the Mini Mental Status Exam (MMSE/Folstein). This assessment tool is widely reported in the medical literature and has been noted to be the most popular cognitive screening tool (Milberg, 1996). Numerous studies have described its psychometric properties using large sample sizes (Bassuk & Murphy, 2003).

The reported cognitive assessments were organized into standardized and non-standardized groups. Subsequently, they were also organized according to theoretical approach (bottom-up and top-down). Bottom-up cognitive assessments examine cognitive capacities such as attention or memory, and therefore assess at the "body function" level, according to the World Health Organization International Classification of Functioning, Disability and Health (ICF). Top-down cognitive assessments on the other hand, assess activities such as kitchen tasks, and therefore assess at the "activity" or

"participation" level. It was found that the responses regarding assessment purpose and reasons for choice were similar amongst assessments using the same theoretical approach; therefore they will be discussed according to theoretical approach.

Differences Between Theoretical Approaches

Bottom-up assessments:

Occupational therapists reported the use of numerous assessments using the bottom-up approach which assessed at the body function level. The majority (45/46) of bottom-up assessments were standardized, and they were reported by a greater number of respondents than the top-down assessments (Table 3-17). This demonstrates that greater numbers of occupational therapists reported use of assessments which measure cognitive capacities such as memory and attention at the body function level, over assessments of daily living tasks. This result may have been affected by a desirability bias towards standardized assessments, because the majority of standardized assessments reported in this study were based on a bottom-up approach.

Bottom-up assessments were reported to be used by most occupational therapists for the purpose of identifying deficits, which is a primary purpose for which these assessments are designed. The most popular of these assessments were screening tools, for which sensitivity and specificity for identification of dementia has been studied in large sample sizes (Lorentz, Scalan & Borson, 2002; Wells et al. 2003). Bottom-up assessments were also reported in this study to be the most widely used across geographic regions (e.g. MMSE, CCT). Numerous of these assessments however were used only regionally, for example the CASE/Pecpa-2r, and the EXIT. The reasons for this regional use may be due to the availability a French translation of the test, as with the Pecpa-2r, the education of the therapists in the assessment in their training program, the requests of the health care team or program the availability of the test materials, and use by local colleagues.

The most highly ranked reasons for choosing bottom-up assessments importance included availability and ease of administration. These assessments generally can be administered at the bedside or in a quiet room with a table, and are designed with ease of administration as an important consideration. This indicates that occupational therapists value assessments which are easily and quickly administered and are readily available. Ease of administration was seen as an important factor in the clinical utility of cognitive assessments in this study, and must be taken into consideration when both reviewing and developing cognitive assessments for occupational therapy.

Despite their widespread use and popularity, respondents indicated that these bottom-up assessments did not fit with occupational therapists' theoretical approach. The meaning of the phrase "theoretical approach" was not elaborated upon in the questionnaire; however, the occupational therapy approach generally involves client-centeredness, and an emphasis on how body function impacts on daily living such as the ability to take medication or cook at home.

An exception to this pattern was noted with the Cognitive Competency Test (CCT) and the Independent Living Scales (ILS). These assessments were grouped into the bottom-up category; however they were reported most often to be used for the purpose of prediction, and to be chosen for their ease of interpretation and the type of information they provided. These assessments use more functional tasks to assess cognitive capacities, such as the recall of a grocery list rather than 3 words for the memory task. The popularity of the CCT despite poorer rigour of psychometric properties compared to other assessments in this category may be attributable to the face validity of these tasks.

Several reasons that were anticipated to be ranked more highly were not. The rigor of the psychometric properties was not ranked amongst the most important reason for choice for the majority of assessments. It must be noted that the respondents were not asked to rank values in to clinical practice, but reasons for choice of a particular assessment. Thus, the lower ranking of the reason "It was reported to have good reliability, validity or responsiveness for its stated purpose" may reflect skepticism or uncertainty about the assessments' psychometric properties rather than a devaluing of these attributes in clinical practice as a whole.

Top-Down Assessments:

The most frequently reported assessments in this category were non-standardized assessments such as assessments of ADL or kitchen tasks. Several standardized assessments of these tasks were reported, including the Kitchen Task Assessment and the Assessment of Motor and Process Skills. The relatively low frequency of use of these assessments could be due to a lack of availability, a lack of knowledge about them, or a lack of clinically useful instruments.

It was noted that in part 1 of the questionnaire a high frequency of therapists reported using interviews, but in part 2, much fewer listed interviews. It is likely that the respondents under-reported the use of non-standardized assessments. This may have been due to a perception that standardized measures were more acceptable answers. Because the respondents were assured anonymity, it is expected that this desirability bias was minimized. The discrepancy in reporting may have been due to a tendency to recall more standardized than non-standardized assessments when asked to report about formal assessment procedures. Although the respondents were cued in the question to recall

both, informal comments during a poster presentation of the results at a national OT conference indicated that some therapists had overlooked listing non-standardized assessments.

The purposes for which top-down assessments were used differed from the bottom-up assessments. They were used by many for identifying deficits, but they were used by slightly more therapists for the purpose of predicting safety or the clients' need for services. The top-down assessments thus served more purposes than the bottom-up assessments. Milberg (1996) described the need for efficient assessment tools of cognition in light of the projected increase in elderly population in North America. Efficient assessment tools are those that would provide information on both functional abilities and cognitive capacities, rather than just one or the other. The occupational therapists in this study identified top-down assessments to serve a greater range of purposes than bottom-up assessments of cognition in older adults.

For both bottom-up and top-down assessments, the purpose of "measurement of change" was the least reported. This may be an indication that therapists were relying on other outcome measures besides cognitive assessments to measure change. Therapists may not expect significant change in cognitive scores after occupational therapy intervention, because the focus of intervention may focus on compensation for cognitive deficits. Alternately, it suggests therapists are not measuring change as often as identifying deficits or prediction.

Because most of the therapists reported the use of non-standardized assessments in this category, the results show that when the therapists were required to predict safety, they used non-standardized assessments. The predictive validity of non-standardized assessments with older adults has been called into question. Studies of non-standardized

home assessments were systematically reviewed by Patterson and Mulley (1999), and they concluded that the evidence to support their "effectiveness" lacked rigour. The results of the current survey demonstrate that occupational therapists are using assessments of cognition to predict, yet the literature demonstrates a gap in data upon which to base these predictions. Therapists are required to rely on clinical reasoning when using non-standardized assessments to predict safety, and this has been demonstrated to vary significantly depending on the occupational therapists' experience (Reich et al. 1998).

The relative demand for prediction, identification of deficits and measurement of change amongst referrals to occupational therapy is not known. Because occupational therapists' role is to examine daily living function, it is likely that the respondents are required to predict function. This was shown in a qualitative study in which occupational therapists were asked about their role in geriatric cognitive assessment (Rajani, 2005). Occupational therapists stated that they incorporated cognitive assessment into a client-centred approach, and examined cognition in terms of a client's function in daily life.

The reasons for choosing top-down assessments also differed from bottom-up assessments. Rather than for ease of administration, top-down assessments were chosen because they gave needed information to assist with the client team or family and because they fit with the therapists' theoretical approach. Occupational therapy theoretical approach directly addresses daily function, and is well placed to address health issues and outcomes at the activity and participation level of the ICF model (Desrosiers, 2005). It was unanticipated that therapists would rank fit with the theoretical approach as important in the choice of cognitive assessments, because it was not expected that clinicians would place such high value on theoretical approach. The assessments that fit

the occupational therapists' theoretical approach were largely non-standardized, and were used for prediction of safety and the need for compensatory intervention. The occupational therapists in this study indicated that assessments that measure outcomes at the functional level provide valuable information, and can be used to predict safety and function for older adults. However, the barriers to use of these assessments were noted in the survey to include the availability and training required. Assessments such as the Assessment of Motor and Process Skills, and approaches such as the Integrative Functional approach require training time and cost that make these much less accessible to therapists and decrease the frequency of their use.

The increasing recognition by therapists of the importance of measuring outcomes at the activity and participation level has been noted in pediatric occupational therapy (Burtner et al. 2002; Watling et al., 1999). A survey in hand therapy has also noted a preference for non-standardized over standardized assessments (Blenkiron, 2005). The occupational therapists in hand therapy noted reasons for use of non-standardized assessments that included familiarity and availability, but also stated the non-standardized assessments "followed a model of practice", and "[took] into account my role... i.e. assessing ADL function, person's social situation...". Blenkiron concluded that therapists lacked knowledge about standardized assessments, and the time to increase their knowledge. However, respondents in the study suggested that they were not using standardized assessments because those available in hand therapy did not fit with the theoretical model of practice, including assessment at the activity and participation level. The respondents therefore noted that the standardized assessments were not clinically useful for all purposes. It is important for researchers to promote clinically useful assessment instruments with evidence to support their use for a given

purpose. Assessments that measure outcomes at the activity and participation level have clinical utility because they can be used for multiple purposes, and they fit with the OT model of practice.

Geographic Region and Practice Setting: do they affect choice of assessment?

Geographic Region

The two most popular standardized assessments and the majority of non-standardized assessments in were used in many regions across the country. Most of the remaining standardized assessments were reported only regionally. Analysis of the assessment groups demonstrated that bottom-up, top-down and interview assessments were reported with similar rates across regions. Thus, despite the results that therapists were reporting the use of different assessment instruments, the approaches to assessment were similar. This result is similar to that obtained from the first objective regarding therapists' overall approaches to assessment. When asked to report overall use for each approach, there was no significant variation across regions. This result also was obtained when respondents listed specific assessment tools.

The occupational therapists who responded to this survey demonstrated a similar pattern of use for bottom-up, top-down, and combined approaches across geographic regions. When reporting particular assessments, non-standardized assessments were reported similarly across regions, however there was significant regional variation in the reporting of particular standardized assessments. The fact that there was no significant regional variation for reporting specific approaches also suggests that therapists are seeking similar types of assessments in their practice, and would benefit from the use of assessments which employed similar approaches. As well, this indicates that Canadian occupational therapists in would likely benefit from information sharing about these assessments, regardless of the region in which they practice.

Practice Setting

There was significant variation amongst work settings for reporting the use of bottom-up and top-down assessments, but interview assessments were used across settings. This corroborates the results found in the first objective. Occupational therapists demonstrated that they all similarly complete an interview with clients or caregivers as part of an initial assessment, but they choose subsequent assessments with wide variation. Differing work settings may demand different information or may facilitate only certain types of assessments and three observations indicated this.

First, it was noted that bottom-up assessments were reported in higher frequencies by therapists working in general hospitals and rehabilitation centres. This may reflect an overall greater frequency for assessment in these two settings compared to home care and long term care. In acute care and rehabilitation centres, occupational therapists are required to assess cognitive function in order to assist with planning discharge into the community.

Second, top-down assessments were also reported in lower frequency in "client's home" compared to general hospitals and somewhat lower than in rehabilitation centres. This result was not anticipated because of the expectation that therapists working in home care would frequently assess older adults using functional household tasks, thereby using a top-down approach. This result may have been influenced by a perception on the part of the therapists that they were not doing "cognitive assessment" when, for example, teaching a bath transfer. This type of assessment may also represent the Toglia/Abreu (Integrative Functional) approach that is focused on processes and strategies, and which was not otherwise highly reported. Their perception of the concept of assessment may

have influenced the results and contributed to under-reporting of non-standardized and top-down assessments.

Third, it was noted, that non-standardized "clinical observation" was reported more in long term care facilities than general hospitals, rehabilitation centres and client's homes. This may reflect the clinical practices of therapists who are working with clients at a lower level of physical and/or cognitive functioning. It may be more difficult to find standardized tests, or to use other methods such as ADL assessments.

Limitations

The study was limited by the sampling method and use of a self-report questionnaire. The sampling method used a data base of therapists who had consented for their contact information to be released. This data set included only therapists who had joined the national occupational therapy association, and had completed a membership form consenting for the release of information. An attempt was made to solicit responses from those who were non-members using newsletter advertisements, however, the majority of responses came from those who had been directly contacted.

The sampling method also used both email and postal requests. The majority of the sample was contacted by email, yet the postal response rate was somewhat greater than the email response rate, which introduced a response bias. The response rates were expected to be equal based on previous studies cited in the literature review. These studies were completed on a non-health care worker population. The smaller email response rate may be specific to the occupational therapy sample because of decreased access to computers at work, which has been noted in a recent survey of occupational therapists (Piu, 2005). A postal questionnaire may have been more visible on a therapist's desk and therefore the visual cue could have served as an ongoing reminder, whereas an email could have easily been deleted. Additionally, the address from which the email was sent was that of the researcher, therefore it was not easily recognizable and may have been regarded as "spam" by the recipients.

The use of a self-report questionnaire to gather the data has inherent limitations. Although the respondents were ensured anonymity, and were requested to list assessments from memory rather than from a list, it was possible that they under-reported the use of interviews in the second part of the questionnaire. This may have been due to

a desirability bias towards the use of standardized assessments which was not overcome by the cues provided in the questionnaire. Additional comments in the questionnaire regarding the value of reporting non-standardized assessments may have countered this bias.

The use of a self-report questionnaire meant that the data were also limited by respondents' recall and the use of assessments may have been under- or over- reported. The therapists' perception of what entailed assessment may have reduced the number of non-standardized assessments reported. It is not known if the standardized assessments reported were used in a standardized way, and how rigorously protocols were followed. As well, the therapists' knowledge of the psychometric data was not challenged or assessed by the questionnaire. It was believed that therapists would find this intimidating and would likely not respond to specific questions regarding the validity or reliability of an assessment. Instead, the questionnaire only sought information about whether the reliability and validity of an instrument was an important reason for its use.

Future Research

The study describes cognitive assessments previously undocumented in the occupational therapy literature, and provides a list of assessments for inclusion in a critical review of outcome measures currently used by occupational therapists.

Future studies may examine the changes in use of types of assessments (standardized/ non-standardized, or top-down/ bottom-up). Dissemination of reviews of psychometric properties for particular assessments may increase the use of assessments with the best evidence to support their reliability and validity. With increased emphasis on measurement of outcomes, occupational therapists may use standardized assessments more frequently, and may begin to incorporate more of them into assessment of activity and participation.

The ICF model could guide future studies into the clinical utility of assessments. Assessments that address activity and participation may be found to fit therapists' theoretical approach, and provide valuable information in many other areas of occupational therapy. The examination of the value of assessments that address the activity and participation level of the ICF would promote the role of occupational therapy in health care, and demonstrate the importance of assessment at this level.

The reasons influencing therapists' choices should be considered when researchers and clinicians develop assessment tools. The data from this study can be used to identify the particular tools that occupational therapists find clinically useful. Groups of assessments were also identified which were found clinically useful because of their ease of use or fit with theoretical approach. Further research into the therapists' perceived and actual knowledge of reliability and validity would be valuable to determine if the lower rankings reflected a lack of knowledge of these criteria.

Conclusions

Occupational therapists stated they used bottom-up assessments to identify deficits and important reasons for their choice included that they were easy and fast to administer. However, they stated that the bottom-up assessments did not fit with their theoretical approach, whereas the top-down assessments not only fit the therapists' theoretical approach, but were used for both identification of deficits and prediction of safety or need for services. Occupational therapists' theoretical approach emphasizes client-centredness, and the importance of meaningful activity. Occupational therapists have a contribution to make at the activity and participation level of health (Desrosiers, 2005). This survey of current practice into cognitive assessment with older adults demonstrated that the majority of therapists who use assessments at the activity or participation levels were using non-standardized assessments. This result was not unique to this area of occupational therapy practice. Development and promotion of standardized assessments at the activity and participation level for use with older adults would provide efficient and clinically useful measures for therapists. Moreover their use will be necessary for evidence-based practice in occupational therapy.

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Appendices

Appendix A: Rationale for Sample size Calculation

(minimum respondents required)(Glass & Hopkins, 1996, p.322)

- Let **p** be the sample proportion that will return the survey, which is .35, based on an *estimated response rate of 35%*. This response rate is a conservative estimate based on the literature review which noted response rates between 35 and 68%.
- Let **q** be the sample proportion that will not return the survey, which is equal to 1 minus p. **q = (1-p)** and is estimated at .65 based on the estimated response rate of 35%
- Preset **standard error of proportion at 2.5% (at 95% confidence interval)**
- Let **n** be the minimum number of respondents required for statistical analysis to achieve a preset standard error of proportion at 0.025 based on the estimated response rate of 35%

$$\begin{aligned}\text{Standard Error}^2 &= \frac{pq}{N} \\ 0.025^2 &= \frac{(.35)(.65)}{n} \\ n &= 364\end{aligned}$$

Therefore, **364** is the minimum number of respondents required for statistical analysis to achieve a preset standard error of proportion at 0.025 with 95% confidence interval based on an estimated response rate of 35%.

Assuming a response rate of 35%, the number of therapists who must be sent surveys is:

$$\begin{aligned}(.35) &= \frac{364}{n} \\ n &= 1040\end{aligned}$$

Therefore, **1040** therapists must be sent surveys. **163 by post and 877 by email** (based on 15.7% of therapists having postal addresses in OT Networker listing).

Appendix B: Recruitment aid

Newsletter Item

Procedure: The following item was placed in provincial occupational therapy association newsletters.

Therapists Opinions about Cognitive Assessment Sought

As an Occupational Therapist who has worked with older adults for a number of years, I have found that I have wanted much more evidence about OT cognitive assessment methods. I was able to get some data on particular assessments that I knew, but kept finding that there were other assessments that OTs are using that are not documented in the OT literature. The literature also revealed a dizzying variety of possible assessments I could use- at least 26, and I have been working on a critical review of these assessments (Douglas, 2004). I also wanted to know what the therapists thought about how useful the assessments really were in their practice. Did they choose them, for example, because they can be administered quickly, or because they are good for prediction of functional skills? Currently, I am undertaking my master's thesis at the University of Alberta, and am trying to gather this information for OTs to use in clinical practice.

I am currently conducting a survey of OTs who work with older adults to ask them about their cognitive assessment practices. Any OT who works with seniors (age 65 and over) and assesses their cognition, has highly valuable expertise, into which I would like to tap. The purpose of the survey is to describe the methods OTs use to assess cognition, the names of assessments, frequency and reasons why you have chosen them. The results can be used to understand the range of current practice, and to develop assessments that meet the characteristics that OTs require.

If you are interested please log into the survey which is on the web at:

<http://www.rehabmed.ualberta.ca/ot/cognitivesurvey>

After OTs complete the questionnaire, they will be able to print out a copy of the participation certificate for your professional portfolio (12.0).

Reference:

Douglas, A.M. (2004, June). Critical review of cognitive assessments in OT for older adults. *Research in Rehabilitation Symposium*, Queen's University at Kingston, ON, Canada.

2. Please list five assessments you typically use when you are assessing cognitive skills of older adults. For functional assessments or interviews, state the task, and for standardized tools provide proper names. The order is not important. For each assessment choice, you will be asked about frequency, purpose and reason for choice.

Assessment Choice A:

a) How often do you use this instrument or method?

- ☐ 1. Less than once a month ☐ 2. 1-5 times per month
☐ 3. 2-4 times per week ☐ 4. Daily

b) Indicate the primary purpose(s) for which you use the instrument (check one or more options)

- ☐ 1. Identify deficits (includes screening or more detailed assessment)
☐ 2. Prediction (safety, compensation or need for service in the community)
☐ 3. Measure change (includes obtaining baseline, measures outcomes)

c) Rate the importance of your reasons for choosing this assessment:

	Not important			Very important	
1. It is available	1	2	3	4	5
2. It is used by my colleagues	1	2	3	4	5
3. It was reported to have good reliability, validity or responsiveness for its stated purpose	1	2	3	4	5
4. It is easily interpreted	1	2	3	4	5
5. It gives me the type of information I require to assist the team, client, and/or family	1	2	3	4	5
6. It can be administered in a reasonable amount of time	1	2	3	4	5
7. It is easily administered in my work setting (e.g. resources, space, setup)	1	2	3	4	5
8. I am familiar with it	1	2	3	4	5
9. The amount of time to learn its administration was reasonable	1	2	3	4	5
10. It fits with my theoretical approach	1	2	3	4	5
11. Other _____	1	2	3	4	5

Assessment Choice B:

a) How often do you use this instrument or method?

- ☐ 1. Less than once a month ☐ 2. 1-5 times per month
☐ 3. 2-4 times per week ☐ 4. Daily

b) Indicate the primary purpose(s) for which you use the instrument (check one or more options)

- ☐ 1. Identify deficits (includes screening or more detailed assessment)
☐ 2. Prediction (safety, compensation or need for service in the community)
☐ 3. Measure change (includes obtaining baseline, measures outcomes)

c) Rate the importance of your reasons for choosing this assessment:

	Not important			Very important		
1. It is available	1	2	3	4	5	
2. It is used by my colleagues	1	2	3	4	5	
3. It was reported to have good reliability, validity or responsiveness for its stated purpose	1	2	3	4	5	
4. It is easily interpreted	1	2	3	4	5	
5. It gives me the type of information I require to assist the team, client, and/or family	1	2	3	4	5	
6. It can be administered in a reasonable amount of time	1	2	3	4	5	
7. It is easily administered in my work setting (e.g. resources, space, setup)	1	2	3	4	5	
8. I am familiar with it	1	2	3	4	5	
9. The amount of time to learn its administration was reasonable	1	2	3	4	5	
10. It fits with my theoretical approach	1	2	3	4	5	
11. Other _____	1	2	3	4	5	

Assessment Choice C:

a) How often do you use this instrument or method?

- ☐ 1. Less than once a month ☐ 2. 1-5 times per month
☐ 3. 2-4 times per week ☐ 4. Daily

b) Indicate the primary purpose(s) for which you use the instrument (check one or more options)

- ☐ 1. Identify deficits (includes screening or more detailed assessment)
☐ 2. Prediction (safety, compensation or need for service in the community)
☐ 3. Measure change (includes obtaining baseline, measures outcomes)

c) Rate the importance of your reasons for choosing this assessment:

	Not important			Very important	
1. It is available	1	2	3	4	5
2. It is used by my colleagues	1	2	3	4	5
3. It was reported to have good reliability, validity or responsiveness for its stated purpose	1	2	3	4	5
4. It is easily interpreted	1	2	3	4	5
5. It gives me the type of information I require to assist the team, client, and/or family	1	2	3	4	5
6. It can be administered in a reasonable amount of time	1	2	3	4	5
7. It is easily administered in my work setting (e.g. resources, space, setup)	1	2	3	4	5
8. I am familiar with it	1	2	3	4	5
9. The amount of time to learn its administration was reasonable	1	2	3	4	5
10. It fits with my theoretical approach	1	2	3	4	5
11. Other _____	1	2	3	4	5

Assessment Choice D:

a) How often do you use this instrument or method?

- ☐ 1. Less than once a month ☐ 2. 1-5 times per month
☐ 3. 2-4 times per week ☐ 4. Daily

b) Indicate the primary purpose(s) for which you use the instrument (check one or more options)

- ☐ 1. Identify deficits (includes screening or more detailed assessment)
☐ 2. Prediction (safety, compensation or need for service in the community)
☐ 3. Measure change (includes obtaining baseline, measures outcomes)

c) Rate the importance of your reasons for choosing this assessment:

	Not important			Very important	
1. It is available	1	2	3	4	5
2. It is used by my colleagues	1	2	3	4	5
3. It was reported to have good reliability, validity or responsiveness for its stated purpose	1	2	3	4	5
4. It is easily interpreted	1	2	3	4	5
5. It gives me the type of information I require to assist the team, client, and/or family	1	2	3	4	5
6. It can be administered in a reasonable amount of time	1	2	3	4	5
7. It is easily administered in my work setting (e.g. resources, space, setup)	1	2	3	4	5
8. I am familiar with it	1	2	3	4	5
9. The amount of time to learn its administration was reasonable	1	2	3	4	5
10. It fits with my theoretical approach	1	2	3	4	5
11. Other _____	1	2	3	4	5

Assessment Choice E:

a) How often do you use this instrument or method?

- ☐ 1. Less than once a month ☐ 2. 1-5 times per month
☐ 3. 2-4 times per week ☐ 4. Daily

b) Indicate the primary purpose(s) for which you use the instrument (check one or more options)

- ☐ 1. Identify deficits (includes screening or more detailed assessment)
☐ 2. Prediction (safety, compensation or need for service in the community)
☐ 3. Measure change (includes obtaining baseline, measures outcomes)

c) Rate the importance of your reasons for choosing this assessment:

	Not important			Very important	
1. It is available	1	2	3	4	5
2. It is used by my colleagues	1	2	3	4	5
3. It was reported to have good reliability, validity or responsiveness for its stated purpose	1	2	3	4	5
4. It is easily interpreted	1	2	3	4	5
5. It gives me the type of information I require to assist the team, client, and/or family	1	2	3	4	5
6. It can be administered in a reasonable amount of time	1	2	3	4	5
7. It is easily administered in my work setting (e.g. resources, space, setup)	1	2	3	4	5
8. I am familiar with it	1	2	3	4	5
9. The amount of time to learn its administration was reasonable	1	2	3	4	5
10. It fits with my theoretical approach	1	2	3	4	5
11. Other _____	1	2	3	4	5

3. Demographic Information:

a). What is the primary setting in which you practice (i.e. Spend the most working hours)?

- | | | |
|---|--|---|
| ☐ 1. General Hospital | ☐ 5. Private Health Business | ☐ 8. Insurance Company |
| ☐ 2. Client's Home | ☐ 6. Mental Health Centre | ☐ 9. Chronic Care/LTC |
| ☐ 3. Rehabilitation Centre | ☐ 7. Post Secondary Institution | ☐ 10. Other (describe) _____ |
| ☐ 4. Community Clinic/Agency | | |

b) Indicate your Gender: ☐ M ☐ F

c) Indicate your Age:

- | | |
|------------------------------------|-------------------------------------|
| ☐ 65 & over | ☐ 35-44 |
| ☐ 55-64 | ☐ 25-34 |
| ☐ 45-54 | ☐ 24 & under |

2. Dressez une liste incluant cinq évaluations que vous utilisez couramment lorsque vous évaluez la capacité cognitive des personnes âgées. Pour chaque évaluation fonctionnelle ou entrevue, indiquez la tâche évaluée. Pour chaque instrument normalisé indiquez le nom exact de l'instrument. L'ordre n'est pas important. Pour chacune des évaluations identifiées, nous vous demanderons d'indiquer la fréquence d'utilisation, le but, et la raison pour laquelle vous avez choisi cette méthode.

Méthode d'évaluation choisie A:

a) À quelle fréquence utilisez-vous cette méthode d'évaluation?

- ☐ 1. moins d'une fois par mois ☐ 2. 1-5 fois par mois
☐ 3. 2-4 fois par semaine ☐ 4. Tous les jours

b) Indiquez l'objectif principal pour lequel vous utilisez cette méthode d'évaluation. (cochez une ou plusieurs options)

- ☐ 1. Identifier les déficits (incluant le dépistage ou l'évaluation détaillée).
☐ 2. Prédire (sûreté, compensation ou besoin de service dans la communauté).
☐ 3. Détecter un changement (incluant mesure initiale et suivi)

c) Évaluez l'importance des raisons pour lesquelles vous choisissez cette méthode d'évaluation :

	Pas important			Très important	
1. Elle est disponible	1	2	3	4	5
2. Elle est utilisée par mes collègues	1	2	3	4	5
3. La fidélité, validité et sensibilité au changement de cette méthode ont été rapportées pour mesurer cet attribut	1	2	3	4	5
4. Les résultats sont faciles à interpréter	1	2	3	4	5
5. Elle me fournit l'information nécessaire pour aider l'équipe, le client, et/ou sa famille	1	2	3	4	5
6. Le temps d'administration est raisonnable	1	2	3	4	5
7. Cette méthode s'administre facilement dans mon milieu de travail (par exemple: ressources, espace, préparation nécessaire)	1	2	3	4	5
8. Je suis familier avec cette méthode	1	2	3	4	5
9. Le temps requis pour me familiariser avec cette méthode était raisonnable	1	2	3	4	5
10. Cette méthode s'inscrit dans le cadre de mon approche théorique	1	2	3	4	5
11. Autre raison: _____	1	2	3	4	5

Méthode d'évaluation choisie B:

a) À quelle fréquence utilisez-vous cette méthode d'évaluation?

☐ 1. moins d'une fois par mois ☐ 2. 1-5 fois par mois

☐ 3. 2-4 fois par semaine ☐ 4. Tous les jours

b) Indiquez l'objectif principal pour lequel vous utilisez cette méthode d'évaluation. (cochez une ou plusieurs options)

☐ 1. Identifier les déficits (incluant le dépistage ou l'évaluation détaillée).

☐ 2. Prédire (sûreté, compensation ou besoin de service dans la communauté).

☐ 3. Détecter un changement (incluant mesure initiale et suivi)

c) Évaluez l'importance des raisons pour lesquelles vous choisissez cette méthode d'évaluation :

	Pas important			Très important	
1. Elle est disponible	1	2	3	4	5
2. Elle est utilisée par mes collègues	1	2	3	4	5
3. La fidélité, validité et sensibilité au changement de cette méthode ont été rapportées pour mesurer cet attribut	1	2	3	4	5
4. Les résultats sont faciles à interpréter	1	2	3	4	5
5. Elle me fournit l'information nécessaire pour aider l'équipe, le client, et/ou sa famille	1	2	3	4	5
6. Le temps d'administration est raisonnable	1	2	3	4	5
7. Cette méthode s'administre facilement dans mon milieu de travail (par exemple: ressources, espace, préparation nécessaire)	1	2	3	4	5
8. Je suis familier avec cette méthode	1	2	3	4	5
9. Le temps requis pour me familiariser avec cette méthode était raisonnable	1	2	3	4	5
10. Cette méthode s'inscrit dans le cadre de mon approche théorique	1	2	3	4	5
11. Autre raison: _____	1	2	3	4	5

Méthode d'évaluation choisie C:

a) À quelle fréquence utilisez-vous cette méthode d'évaluation?

☐ 1. moins d'une fois par mois ☐ 2. 1-5 fois par mois

☐ 3. 2-4 fois par semaine ☐ 4. Tous les jours

b) Indiquez l'objectif principal pour lequel vous utilisez cette méthode d'évaluation.
(cochez une ou plusieurs options)

- ☐ 1. Identifier les déficits (incluant le dépistage ou l'évaluation détaillée).
☐ 2. Prédire (sûreté, compensation ou besoin de service dans la communauté).
☐ 3. Détecter un changement (incluant mesure initiale et suivi)

c) Évaluez l'importance des raisons pour lesquelles vous choisissez cette méthode d'évaluation :

	Pas important			Très important	
1. Elle est disponible	1	2	3	4	5
2. Elle est utilisée par mes collègues	1	2	3	4	5
3. La fidélité, validité et sensibilité au changement de cette méthode ont été rapportées pour mesurer cet attribut	1	2	3	4	5
4. Les résultats sont faciles à interpréter	1	2	3	4	5
5. Elle me fournit l'information nécessaire pour aider l'équipe, le client, et/ou sa famille	1	2	3	4	5
6. Le temps d'administration est raisonnable	1	2	3	4	5
7. Cette méthode s'administre facilement dans mon milieu de travail (par exemple: ressources, espace, préparation nécessaire)	1	2	3	4	5
8. Je suis familier avec cette méthode	1	2	3	4	5
9. Le temps requis pour me familiariser avec cette méthode était raisonnable	1	2	3	4	5
10. Cette méthode s'inscrit dans le cadre de mon approche théorique	1	2	3	4	5
11. Autre raison: _____	1	2	3	4	5

Méthode d'évaluation choisie D:

a) À quelle fréquence utilisez-vous cette méthode d'évaluation?

- ☐ 1. moins d'une fois par mois ☐ 2. 1-5 fois par mois
☐ 3. 2-4 fois par semaine ☐ 4. Tous les jours

b) Indiquez l'objectif principal pour lequel vous utilisez cette méthode d'évaluation.
(cochez une ou plusieurs options)

- ☐ 1. Identifier les déficits (incluant le dépistage ou l'évaluation détaillée).
☐ 2. Prédire (sûreté, compensation ou besoin de service dans la communauté).
☐ 3. Détecter un changement (incluant mesure initiale et suivi)

c) Évaluez l'importance des raisons pour lesquelles vous choisissez cette méthode d'évaluation :

	Pas important			Très important	
1. Elle est disponible	1	2	3	4	5
2. Elle est utilisée par mes collègues	1	2	3	4	5
3. La fidélité, validité et sensibilité au changement de cette méthode ont été rapportées pour mesurer cet attribut	1	2	3	4	5
4. Les résultats sont faciles à interpréter	1	2	3	4	5
5. Elle me fournit l'information nécessaire pour aider l'équipe, le client, et/ou sa famille	1	2	3	4	5
6. Le temps d'administration est raisonnable	1	2	3	4	5
7. Cette méthode s'administre facilement dans mon milieu de travail (par exemple: ressources, espace, préparation nécessaire)	1	2	3	4	5
8. Je suis familier avec cette méthode	1	2	3	4	5
9. Le temps requis pour me familiariser avec cette méthode était raisonnable	1	2	3	4	5
10. Cette méthode s'inscrit dans le cadre de mon approche théorique	1	2	3	4	5
11. Autre raison: _____	1	2	3	4	5

Méthode d'évaluation choisie E:

a) À quelle fréquence utilisez-vous cette méthode d'évaluation?

- ☐ 1. moins d'une fois par mois ☐ 2. 1-5 fois par mois
☐ 3. 2-4 fois par semaine ☐ 4. Tous les jours

b) Indiquez l'objectif principal pour lequel vous utilisez cette méthode d'évaluation. (cochez une ou plusieurs options)

- ☐ 1. Identifier les déficits (incluant le dépistage ou l'évaluation détaillée).
☐ 2. Prédire (sûreté, compensation ou besoin de service dans la communauté).
☐ 3. Détecter un changement (incluant mesure initiale et suivi)

c) Évaluez l'importance des raisons pour lesquelles vous choisissez cette méthode d'évaluation :

	Pas important			Très important	
1. Elle est disponible	1	2	3	4	5
2. Elle est utilisée par mes collègues	1	2	3	4	5
3. La fidélité, validité et sensibilité au changement de cette méthode ont été rapportées pour mesurer cet attribut	1	2	3	4	5
4. Les résultats sont faciles à interpréter	1	2	3	4	5
5. Elle me fournit l'information nécessaire pour aider l'équipe, le client, et/ou sa famille	1	2	3	4	5
6. Le temps d'administration est raisonnable	1	2	3	4	5
7. Cette méthode s'administre facilement dans mon milieu de travail (par exemple: ressources, espace, préparation nécessaire)	1	2	3	4	5
8. Je suis familier avec cette méthode	1	2	3	4	5
9. Le temps requis pour me familiariser avec cette méthode était raisonnable	1	2	3	4	5
10. Cette méthode s'inscrit dans le cadre de mon approche théorique	1	2	3	4	5
11. Autre raison: _____	1	2	3	4	5

3. Information démographique :

a). Milieu de travail où vous passez le plus de temps:

- | | | |
|--|---|---|
| ☐ 1. Hôpital Général | ☐ 5. Organisme de santé privée | ☐ 8. Compagnie d'assurance |
| ☐ 2. Service à domicile | ☐ 6. Centre de soins psychiatrique | ☐ 9. Établissement de soin prolongés |
| ☐ 3. Centre de réadaptation | ☐ 7. Établissement d'étude post-secondaire | ☐ 10. Autre (décrivez le) |
| ☐ 4. Organisme/Clinique communautaire | | |

b) Indiquez votre genre : ☐ F ☐ M

Indiquez votre âge :

- | | |
|-------------------------------------|--------------------------------------|
| ☐ 65 et plus | ☐ 35-44 |
| ☐ 55-64 | ☐ 25-34 |
| ☐ 45-54 | ☐ moins de 24 |

Appendix J: Standardized Assessments not Previously Reported in the Occupational Therapy Literature

Group	Standardized Assessments
Bottom up: short battery	Independent Living Scale (ILS) Woodcock Johnson Test of Cognitive Ability Hopkins Verbal Learning Test (HVLT) Kingston Standardized Cognitive Assessment Ross Information Processing Assessment- Geriatric (RIPA-G) Cognitive Mode Questionnaire (CMQ)
Bottom up: Screening	Cognitive Assessment Screening Test (CAST) Montreal Cognitive Assessment (MOCA) Test for Severe Impairment (TSI)
Bottom up: domain specific	Executive Interview (EXIT) Frontal Assessment Battery (FAB) Bell's Scanning Test Useful Field of Vision Test biVABA Orientation Test for Aphasics Dynavision Charron Test of Attention & Concentration Affective Test of Prosody (ATP) (executive function skills)
Top- down	Empirical Behavioral Pathology in Alzheimer's Disease Rating Scale (E-Behave-AD) Limiting Long Standing Illness screen (LLSI) Bedford Alzheimer Nursing Severity scale: for the severely demented (BANS)